STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF FISH AND GAME

FISH BULLETIN 138

THE CALIFORNIA MARINE FISH CATCH FOR 1966

By

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Marine Resources Operations

and

California-Based Fisheries Off the West Coast of Mexico for Temperate Tunas, Market Fish, and Sport Fish

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1968

MAP OF
CALIFORNIA
SHOWING
STATISTICAL AREAS
N
EUREKA
AREA
SACRAMENTO
AREA
SAN FRANCISCO
AREA
MONTEREY
AREA
SANTA BARBARA
AREA
LOS ANGELES AREA
SAN DIEGO AREA
Crescent City
DEL NORTE
Eureka
HUMBOLDT
MENDOCINO
Ft. Bragg
LAKE
SONOMA
MARIN
Pittsburg
San Francisco
SAN MATEO
SANTA CRUZ
Monterey
MONTEREY
SAN LUIS OBISPO
SANTA BARBARA
VENTURA
Santa Barbara
LOS ANGELES
San Pedro
ORANGE
Newport
SAN DIEGO
San Diego

FIGURE 1

TABLE OF CONTENTS

CALIFORNIA MARINE FISH CATCH FOR 1966
by *Richard F. G. Heimann and Herbert W. Frey*

Page

Foreword ---- 5
Explanation of Tables ---- 6
Common and Scientific Names of Fishes, Crustaceans, and Mollusks in the 1966 Catch ---- 9
Annual Landings and Shipments (Figure 2) ---- 10
Annual Landings and Shipments, 1916 through 1966 ---- 11
Landings and Shipments of Leading Species Ranked by Pounds ---- 11
Number of Licensed Commercial Fishermen ---- 12
Number of Registered Fishing Boats by Length ---- 12
Origin of Shipments ---- 13
Origin of Commercial Fish Landings ---- 14
Monthly Landings and Shipments—Statewide ---- 16
Monthly Landings and Shipments—by Area ---- 18
Value and Poundage, Annual Landings and Shipments by Areas ---- 32
Value of Landings and Shipments by Ports and Areas ---- 35
Partyboat Sport Catch, 1957–1966 ---- 44
Live Bait Catch, 1961–1966 ---- 45
Appendix A—Species Composition of Salmon Landings ---- 46

CALIFORNIA-BASED FISHERIES OFF THE WEST COAST OF MEXICO FOR TEMPERATE TUNAS, MARKET FISH, AND SPORT FISH

By *Philip M. Roedel and Herbert W. Frey* ---- 49
Appendix A—Names of Species Baja California Fisheries ---- 76

IN MEMORIAM

H. Annine Stevens

Annine Stevens passed away on September 24, 1967 at her home in Long Beach. She had retired in June from the Biostatistical Section of the California State Fisheries Laboratory where she had served as Supervising Clerk of the Data Collection Unit since 1959.

Annine joined the Department of Fish and Game in 1953 as an Account Clerk, and later served as a Tabulating Machine Operator and as a Senior Clerk before taking on the duties of Supervising Clerk. In this latter capacity, she bore the major responsibility for preparing the annual catch bulletins as well as for insuring the orderly flow of the basic catch data through the unit. Her special knowledge and background was an asset to the Department that was recognized by all who worked with her.

Her cheerful manner and desire to be helpful to others won her many friends throughout the Department. All of us extend our sincere sympathies to her family.—*Richard F. G. Heimann*

FOREWORD

Catch bulletins provide records of the amounts and values of various living marine resources taken by California's commercial fisheries, and summarize the catches made by the partyboat sportfishing industry. They also detail the small quantities of freshwater fish taken commercially in inland areas. These data provide the basic background for managing California's commercial fishery resources. The published figures are of national and international significance, and are used by fisheries scientists, legislators, educators, members of the fishing industry, and others interested in the State's fisheries.

This report for 1966 is the 26th in the series of catch bulletins. The first, published in 1929, contained the records of the 1926 and 1927 commercial fish catches.

California's fishery statistics are based on a system whereby fish dealers, processors, and partyboat operators send duplicate copies of their landing records to the Department. The statistical system and methods used to collect the records were fully described in Fish Bulletin 86, which reported the catch for 1950. In the intervening years, methods and equipment have been modified as conditions warranted, but the basic principles have remained unchanged.

Credit for this publication belongs to the personnel of the Biostatistics Unit who process the many documents necessary for its publication. Special acknowledgment is given to the wardens along the coast and the clerks in the field offices whose efforts insure the completeness of the records. We appreciate as well the cooperation of the many wholesale fish dealers and canners.

EXPLANATION OF TABLES

The tables in this bulletin summarize the statistics of the various fishery operations in California during 1966. Four types of activity are being reported this year: landings of commercial fishermen in California; imports of tuna from other states or foreign countries destined for processing in California; sport catches of the partyboat fleet; and catches of boats supplying live bait for sportfishing. In addition, an appendix showing the species composition of the salmon catch has been included. The tabulation of inshore bait landings shown in 1963, 1964 and 1965 is not included this year; however, we plan to present these data for 1966 and 1967 in the 1967 catch bulletin.

The statistics presented in this publication do not encompass all of the fishing activities in the State since not all of these activities are reported. For example: sportfishing from private boats or from shore is not reported, nor is the importation of fish for use in a fresh state. Department biologists do sample some facets of the sportfishery, but since this is part of specific studies, most of the results are not reported here.

The Department annually publishes a circular which enumerates some of the fishery products produced from the catch. The 1966 figures are contained in circular No. 41, "Statistical Report of Fresh, Canned, Cured, and Manufactured Fishery Products for 1966" (Heimann and Frey, 1967).

SOURCE OF DATA

Data on each commercial landing and import are recorded on receipts by fish dealers or processors at the time of delivery. Copies of these documents are transmitted to the Department twice each month. For each transaction, the dealer is required to provide the weight of each species and the price paid to the fishermen. The date of the transaction, the fisherman's name, the fishing boat registration number, and intended use of the fish (canning, fresh, etc.) are also required. In addition, the specific area where the fish were caught and the type of gear used are usually reported.

Partyboat catch data are obtained from logs completed by the boat operator. The log for each trip includes the number of each species taken, the number of anglers, the number of hours fished, and the specific area fished. The date, boat name, and boat registration number are also furnished. Copies of these records are sent to the Department monthly.

Operators of boats supplying live bait keep a voluntary daily log showing the number of sets, the species caught, the area fished, and the number of scoops of bait sold. Copies of these logs are furnished the Department monthly. These records represent almost all the live bait landings; nevertheless, the reported catch should be regarded as minimal.

Clerical personnel at field offices at Eureka, San Francisco, Monterey, Terminal Island, and San Diego maintain contact with fish dealers

and local Fish and Game Wardens to insure that the records are accurate and transmitted promptly. All data received by the Department are carefully edited to insure correctness and coded to facilitate processing. The data are then punched into cards and summarized with electric tabulating machines.

STATISTICAL AREAS

The State is divided into seven areas for the purpose of reporting fisheries statistics (Figure 1). Each statistical area is named for a major port within its boundaries. Sacramento area landing statistics are incorporated with San Francisco totals in the tables.

SPECIES

The common and scientific names of the species reported in 1966 are listed in Table 1. Some varieties are reported only collectively when, for economic or other reasons, a specific separation is not practical. A further combination of species is made in preparing the tables.

The "Miscellaneous (Animal Food)" category consists of a variety of low value species caught by trawling. Since it is impractical for the dealers to report the many species separately, Department biologists periodically sample this catch to determine its species composition. Based on this sampling, the percentage and weight compositions of the 1966 animal-food category are as follows:

Species	*Percent*	*Pounds*
Sablefish	42.7	1,014,927
Rockfish	15.0	356,319
Arrowtooth flounder	10.8	256,350
Pacific hake	10.3	246,115
English sole	5.9	139,243
Dover sole	5.3	126,628
White croaker	2.2	53,079
Rex sole	1.7	41,178
Bigmouth sole	1.7	40,940
Hornyhead turbot	1.1	26,183
Twenty-nine other species	3.3	79,261
	100.0	2,380,223

Salmon catches reported in the tables are for all species combined. However, biologists from the Department's Marine Resources Branch sample the commercial and sport salmon fisheries to determine the species composition of the catches and to obtain estimates of the unreported catch from skiffs. The sampling methods and results for 1952 through 1965 previously have been detailed (Jensen and Swartzell, 1967). The results for 1966 are presented in Appendix A, Tables I and II of this catch report, and we plan to provide these data in a similar manner in the future.

CONDITION

Most fish and shellfish are landed in a round condition; however, some species, such as salmon and swordfish, are usually eviscerated or cleaned before being brought ashore. The condition of fish landed or shipped into the State cannot always be determined, so the tables summarize the weights as reported to the Department without regard to condition.

Since 1963, oyster landings have been reported as packed weight rather than weight in the shell. The packed weight is estimated to be 15.5 percent of the live weight for Pacific oysters; 10.9 percent for eastern oysters.

Landings reported in measurements other than weight are equated to pounds using conversion factors determined by periodic sampling. The factors used in 1966 were:

Abalone, red	50 pounds per dozen
Abalone, pink	25 pounds per dozen
Abalone, white	25 pounds per dozen
Abalone, green	35 pounds per dozen
Clam, Washington	7 pounds per dozen
Crab, market	2 pounds each
Live bait	12.5 pounds per scoop

VALUE

Value is computed from prices paid to the fishermen. The area value figures are ascertained by summing the value of all the individual landings in that area. The value for an individual port within an area is calculated from the weights of each species landed at that port and the average price paid for the species in that area. When the price paid for an individual landing is not specified, the average price paid for the species in the area is used.

REFERENCES

Heimann, Richard F. G., and Herbert W. Frey, 1967. Statistical report of fresh, canned, cured and manufactured fishery products for 1966. Calif. Dept. Fish and Game, Circular, (41): 1-14.

Jensen, Paul T., and Phillip G. Swartzell, 1967. California salmon landings 1952 through 1965. Calif. Dept. Fish and Game, Fish Bull., (135): 43-57.

TABLE 1

Common and Scientific Names of Fishes, Crustaceans, and Mollusks in the 1966 Catch

Common name	Scientific name
FISHES	
Anchovy	*Engraulis mordax*
Barracuda, California	*Sphyraena argentea*
Bass, rock	
Kelp bass	*Paralabrax clathratus*
Sand bass	*Paralabrax nebulifer*
Blacksmith	*Chromis punctipinnis*
Bonito, Pacific	*Sarda chiliensis*
Cabezon	*Scorpaenichthys marmoratus*
Cabrilla, spotted	*Epinephelus analogus*
Carp	*Cyprinus carpio*
Corvina, shortfin	*Cynoscion parvipinnis*
Croaker	
White	*Genyonemus lineatus*
Queenfish	*Seriphus politus*
Eel	
California moray	*Gymnothorax mordax*
Flounder	
Arrowtooth	*Atheresthes stomias*
Starry	*Platichthys stellatus*
Small amounts of other flatfishes	
Flyingfish	*Cypselurus* spp.
Greenling, kelp	*Hexagrammos decagrammus*
Grouper	*Mycteroperca* spp.
Hake, Pacific	*Merluccius productus*
Halfmoon	*Medialuna californiensis*
Halibut	
California	*Paralichthys californicus*
Pacific	*Hippoglossus stenolepis*
Hardhead	
Sacramento blackfish	*Orthodon microlepidotus*
Hardhead	*Mylopharodon conocephalus*
Herring, Pacific	*Clupea pallasi*
Lingcod	*Ophiodon elongatus*
Mackerel	
Bullet	*Auxis rochei*
Jack	*Trachurus symmetricus*
Pacific	*Scomber diego*
Opaleye	*Girella nigricans*
Perch	Members of family Embiotocidae
Pompano, Pacific	*Palometa simillima*
Rockfish	All species of *Sebastodes* and *Sebastolobus*
Sablefish	*Anoplopoma fimbria*
Salmon	
King	*Oncorhynchus tshawytscha*
Pink	*Oncorhynchus gorbuscha*
Silver	*Oncorhynchus kisutch*
Sanddab	*Citharichthys sordidus*
Sardine	*Sardinops caeruleus*
Sargo	*Anisotremus davidsoni*
Sculpin	*Scorpaena guttata*
Sea bass, giant	*Stereolepis gigas*
Seabass, white	*Cynoscion nobilis*
Shad	*Alosa sapidissima*
Shark	
Brown smooth-hound	*Triakis henlei*
Leopard	*Triakis semifasciata*
Pacific angel	*Squatina californica*
Soupfin	*Galeorhinus zyopterus*
Spiny dogfish	*Squalus acanthias*
Thresher	*Alopias vulpinus*
Small amounts of others	
Sheephead, California	*Pimelometopon pulchrum*
Skate	
Big	*Raja binoculata*
California	*Raja inornata*
Longnose	*Raja rhina*
Small amounts of others	
Smelt	
Eulachon	*Thaleichthys pacificus*
Grunion	*Leuresthes tenuis*
Jacksmelt	*Atherinopsis californiensis*
Nightsmelt	*Spirinchus starksi*
Surf	*Hypomesus pretiosus*
Topsmelt	*Atherinops affinis*
Smelt, whitebait	*Allosmerus elongatus* *Spirinchus starksi* Young of several others
Sole	
Dover	*Microstomus pacificus*
English	*Parophrys vetulus*
Petrale	*Eopsetta jordani*
Rex	*Glyptocephalus zachirus*
Sand	*Psettichthys melanostictus*
Small amounts of others	
Splittail	*Pogonichthys macrolepidotus*
Swordfish	*Xiphias gladius*
Tuna	
Albacore	*Thunnus alalunga*
Bigeye	*Thunnus obesus*
Bluefin	*Thunnus thynnus*
Longtail	*Thunnus tonggol*
Skipjack	*Katsuwonus pelamis*
Yellowfin	*Thunnus albacares*
Turbot	
Curlfin	*Pleuronichthys decurrens*
Diamond	*Hypsopsetta guttulata*
Hornyhead	*Pleuronichthys verticalis*
Small amounts of others	
Wahoo	*Acanthocybium solanderi*
Whitefish, ocean	*Caulolatilus princeps*
Yellowtail, California	*Seriola dorsalis*
CRUSTACEANS	
Crab	
Market	*Cancer magister*
Rock	*Cancer productus*
	Cancer antennarius
	Cancer anthonyi
Lobster, spiny	*Panulirus interruptus*
Prawn	
Spot	*Pandalus platyceros*
Ridgeback	*Eusicyonia ingentis*
Shrimp	
Bay	*Crago franciscorum* *Crago nigricauda*
Ocean	*Pandalus jordani*
MOLLUSKS	
Abalone	
Pink	*Haliotis corrugata*
Red	*Haliotis rufescens*
Green	*Haliotis fulgens*
White	*Haliotis sorenseni*
Clam	
Gaper	*Tresus nuttalli*
Washington	*Saxidomus nuttalli*
Octopus	*Octopus* spp.
Oyster	
Eastern	*Crassostrea virginica*
Giant Pacific	*Crassostrea gigas*
Squid	*Loligo opalescens*

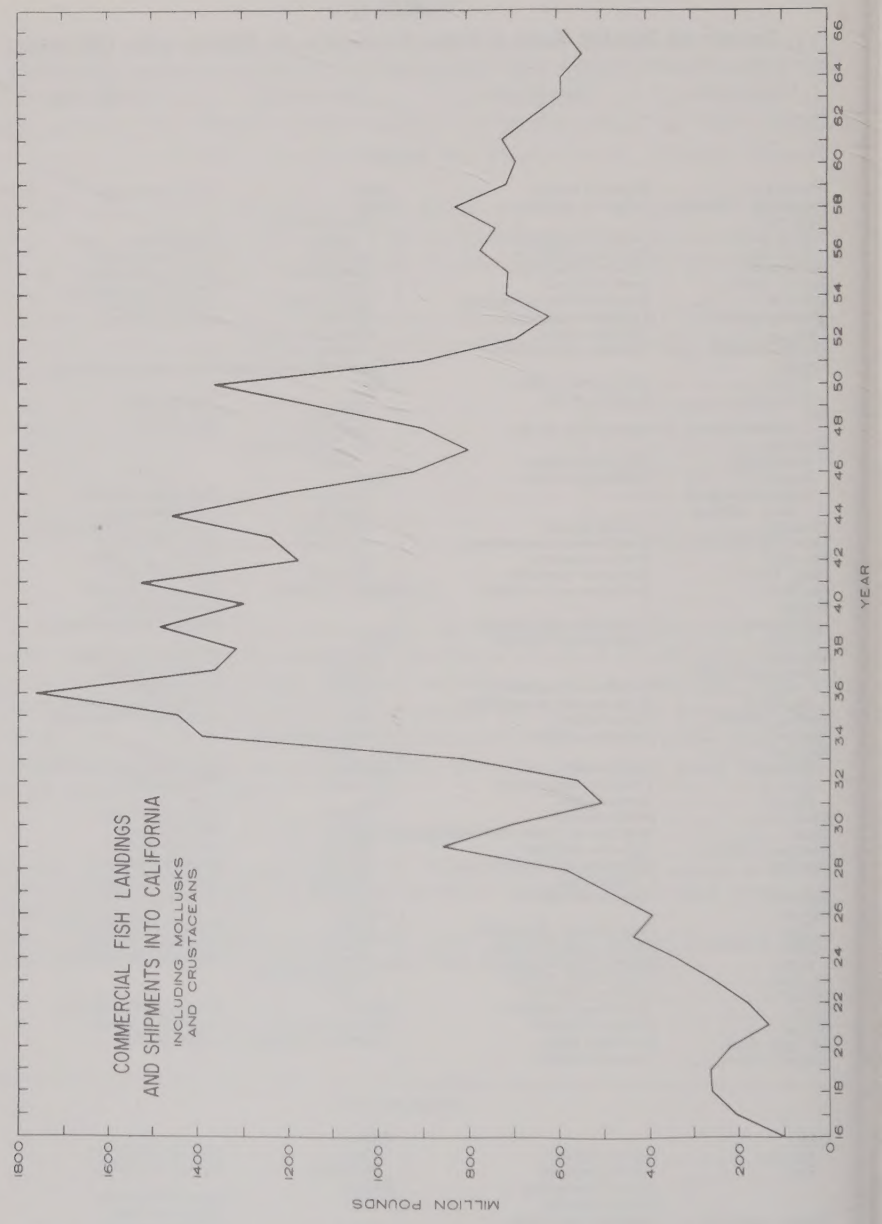

FIGURE 2. Total annual landings and shipments into California (see Table 2). Sardine deliveries to reduction ships, 1930–38, are included. Since 1965, tunas are the only species included in shipments.

TABLE 2

Total Annual Landings and Shipments Into California of Commercial Fish, Mollusks, and Crustaceans; Includes Sardine Deliveries to Reduction Ships During 1930 Through 1938

Year	Thousands of pounds	Year	Thousands of pounds
1916	95,003	1941	1,529,148
1917	209,877	1942	1,173,414
1918	261,134	1943	1,234,049
1919	266,270	1944	1,459,446
1920	222,004	1945	1,216,467
1921	135,348	1946	919,850
1922	182,343	1947	795,499
1923	253,875	1948	900,540
1924	340,446	1949	1,135,325
1925	437,502	1950	1,366,596
1926	394,964	1951	904,088
1927	487,166	1952	694,977
1928	583,527	1953	618,899
1929	856,854	1954	713,406
1930	702,189	1955	710,714
1931	502,390	1956	772,549
1932	556,139	1957	738,550
1933	821,805	1958	832,919
1934	1,390,799	1959	713,491
1935	1,448,017	1960	694,663
1936	1,764,900	1961	725,253
1937	1,362,984	1962	663,107
1938	1,310,596	1963	592,899
1939	1,486,535	1964	591,131
1940	1,297,517	1965*	544,480
		1966	591,533

* Beginning in 1965 only tuna shipments are recorded.

TABLE 3

Landings and Shipments of Leading Species Ranked by Pounds *

1965				1966			
Species	Rank	Thousands of pounds	Thousands of dollars	Species	Rank	Thousands of pounds	Thousands of dollars
Yellowfin tuna	1	196,435	$28,808	Yellowfin tuna	1	189,845	$38,115
Skipjack tuna	2	89,919	9,487	Albacore tuna	2	73,909	17,306
Albacore	3	68,025	11,628	Skipjack tuna	3	65,226	9,285
Jack mackerel	4	66,666	1,829	Anchovy	4	62,280	644
Squid	5	18,620	308	Jack mackerel	5	40,862	1,424
Bluefin tuna	6	16,735	2,210	Bluefin tuna	6	37,939	5,804
Dover sole	7	10,760	654	Pacific bonito	7	19,148	761
Salmon	8	9,738	4,989	Squid	8	19,026	451
Rockfish	9	9,392	573	Market crab	9	12,376	1,880
Pacific mackerel	10	7,050	224	Dover sole	10	10,312	687
Anchovy	11	5,733	99	Rockfish	11	10,064	660
Pacific bonito	12	5,638	149	Salmon	12	9,447	4,845
English sole	13	4,892	382	Abalone	13	4,964	915
Market crab	14	4,804	1,066	English sole	14	4,845	421
Abalone	15	4,576	698	Pacific mackerel	15	4,630	189
Miscellaneous (animal food)	16	2,874	57	Sablefish	16	3,216	231
Sablefish	17	2,864	201	Petrale sole	17	2,927	391
Petrale sole	18	2,662	325	Bigeye tuna	18	2,878	557
Sardine	19	1,924	125	Miscellaneous (animal food)	19	2,380	44
Rex sole	20	1,491	102	Rex sole	20	1,635	132
All others	--	13,682	2,294	All others	--	13,624	2,557
Totals	--	**544,480**	**$66,208**	**Totals**	--	**591,533**	**$87,299**

*Only the tunas are included in the shipments.

TABLE 4

Number of Licensed Commercial Fishermen

Area of residence	License year*	
	1965–66	1966–67
Eureka	1,520	1,695
Sacramento	348	437
San Francisco	1,546	1,417
Monterey	755	686
Santa Barbara	856	944
Los Angeles	2,022	2,020
San Diego	1,676	1,611
Alaska, Washington and Oregon fishermen licensed in California	429	478
Mexican nationals licensed in California	29	43
Other	41	26
Totals	**9,222**	**9,357**

* April 1 to March 31.

TABLE 5

Number of Registered Fishing Boats by Length

License year*	Up to 24 feet	25 to 39 feet	40 to 64 feet	65 to 84 feet	85 to 99 feet	100 feet and over	Total
1965–66	1,267	1,718	1,090	120	34	100	4,329†
1966–67	1,357	1,681	1,077	125	29	99	4,368‡

* April 1 to March 31.
† The owners of 492 boats were issued fishing party licenses in 1965–66.
‡ The owners of 470 boats were issued fishing party licenses in 1966–67.

TABLE 6

Origin of Shipments Received for Processing in California During 1966 *

Shipped from: * Species	Pounds shipped to each area			Total pounds
	San Francisco	Los Angeles	San Diego	
Oregon, Washington, Canada and Alaska:				
Tuna, albacore	----	5,312,235	76,667	5,388,902
Tuna, skipjack	----	4,482	----	4,482
Mexico and Central America:				
Tuna, skipjack	----	479,948	----	479,948
Tuna, yellowfin	----	91,005	----	91,005
South America:				
Tuna, skipjack	----	68,073	----	68,073
Tuna, yellowfin	----	720,744	----	720,744
Japan:				
Tuna, albacore	----	31,071,237	1,311,244	32,382,481
Tuna, bigeye	----	2,640,304	----	2,640,304
Tuna, skipjack	----	10,542,105	----	10,542,105
Tuna, yellowfin	342,690	42,724,697	476,057	43,543,444
Australia:				
Tuna, albacore	----	1,212	----	1,212
Tuna, bluefin	----	3,118,804	----	3,118,804
Tuna, longtail	----	6,755	----	6,755
Tuna, yellowfin	----	6,005	----	6,005
China (Formosa):				
Tuna, albacore	----	18,910	----	18,910
Tuna, bigeye	----	74,640	----	74,640
Tuna, yellowfin	----	430,227	----	430,227
Malaya:				
Tuna, albacore	----	9,609,294	261,510	9,870,804
Tuna, bigeye	----	146,688	----	146,688
Tuna, yellowfin	----	8,954,662	----	8,954,662
Philippines:				
Tuna, yellowfin	----	1,381,460	----	1,381,460
South Pacific Islands:				
Tuna, albacore	----	5,431,310	2,626,007	8,057,317
Tuna, skipjack	----	3,041,663	----	3,041,663
Tuna, yellowfin	----	1,322,163	800,539	2,122,702
Total pounds	**342,690**	**127,198,623**	**5,552,024**	**133,093,337**

* Beginning in 1965 only tuna shipments are recorded.

TABLE 7

Origin of Commercial Fish Landings and Volume of Shipments Into California During 1966

Species	Landings of catches from					
	California waters	Waters north of State	Waters south of State	Total pounds	Tuna shipments*	Grand total
Fish:						
Anchovy	62,280,236	----	----	62,280,236	----	62,280,236
Barracuda, California	233,319	----	85,797	319,116	----	319,116
Blacksmith	6,920	----	----	6,920	----	6,920
Bonito, Pacific	18,308,175	----	840,319	19,148,494	----	19,148,494
Cabezon	12,599	----	----	12,599	----	12,599
Cabrilla, spotted	----	----	11,917	11,917	----	11,917
Carp	252,409	----	----	252,409	----	252,409
Croaker, white	790,997	----	85	791,082	----	791,082
Flounder	379,703	925	----	380,628	----	380,628
Flounder, arrowtooth	3,503	----	----	3,503	----	3,503
Flyingfish	56,362	----	----	56,362	----	56,362
Grouper	----	----	250,909	250,909	----	250,909
Hake, Pacific	69,002	----	----	69,002	----	69,002
Halfmoon	9,530	----	----	9,530	----	9,530
Halibut, California	749,555	----	261,857	1,011,412	----	1,011,412
Halibut, Pacific	671	----	----	671	----	671
Hardhead	257,021	----	----	257,021	----	257,021
Herring, Pacific	241,973	----	----	241,973	----	241,973
Lingcod	790,960	8,919	424	800,303	----	800,303
Mackerel, bullet	36,195	----	----	36,195	----	36,195
Mackerel, jack	40,862,409	----	----	40,862,409		40,862,409
Mackerel, Pacific	4,629,504	----	----	4,629,504	----	4,629,504
Opaleye	19,432	----	----	19,432	----	19,432
Perch	158,176	----	2,205	160,381	----	160,381
Pompano, Pacific	59,652	----	----	59,652	----	59,652
Rockfish	9,874,348	100,548	88,696	10,063,592	----	10,063,592
Sablefish	3,145,883	70,056	----	3,215,939	----	3,215,939
Salmon	9,446,995	----	----	9,446,995	----	9,446,995
Sanddab	719,419	682	----	720,101	----	720,101
Sardine	878,359	----	----	878,359	----	878,359
Sargo	960	----	160	1,120	----	1,120
Sculpin	84,465	----	24,034	108,499		108,499
Sea bass, giant	7,486		333,481	340,967		340,967
Seabass, white	674,545	----	663,305	1,337,850	----	1,337,850
Shark	630,527	----	23,263	653,790	----	653,790
Sheephead, California	13,276	----	2,708	15,984	----	15,984
Skate	152,475	----	1,539	154,014	----	154,014
Smelt	522,457	----	----	522,457	----	522,457
Smelt, whitebait	162,259	----	----	162,259	----	162,259
Sole, Dover	9,662,983	648,650	----	10,311,633	----	10,311,633
Sole, English	4,779,512	65,356		4,844,868		4,844,868
Sole, petrale	2,885,932	41,558		2,927,490		2,927,490
Sole, rex	1,908,714	26,685		1,935,399		1,935,399
Sole, sand	235,691	----	----	235,691	----	235,691
Sole, miscellaneous	25,957	----	----	25,957	----	25,957
Splittail	1,890			1,890		1,890
Swordfish	163,785		4,987	168,772		168,772
Tuna, albacore	16,141,399	672,854	1,374,959	18,189,212	55,719,626	73,908,838
Tuna, bigeye			16,666	16,666	2,861,632	2,878,298
Tuna, bluefin	2,202,585		32,617,821	34,820,406	3,118,804	37,939,210
Tuna, longtail	----	----	----	----	6,755	6,755
Tuna, skipjack	173,781	----	50,915,480	51,089,261	14,136,271	65,225,532
Tuna, yellowfin	2,385	----	132,592,138	132,594,523	57,250,249	189,844,772
Turbot	83,327	----	----	83,327	----	83,327
Whitefish, ocean	985	----	1,724	2,709	----	2,709
Yellowtail, California	35,880	----	209,327	245,207	----	245,207
Miscellaneous	38,919	----	519	39,438	----	39,438
Miscellaneous (animal food)	2,202,339	177,884	----	2,380,223	----	2,380,223

TABLE 7—Continued

Origin of Commercial Fish Landings and Volume of Shipments Into California During 1966

Species	Landings of catches from					
	California waters	Waters north of State	Waters south of State	Total pounds	Tuna shipments*	Grand total
Crustacean:						
Crab, market	12,376,340	50	----	12,376,390	----	12,376,390
Crab, rock	330,683	----	160	330,843	----	330,843
Lobster, spiny	489,088	----	----	489,088	----	489,088
Prawn, spot	3,575	----	----	3,575	----	3,575
Prawn, ridgeback	30,238	----	----	30,238	----	30,238
Shrimp, bay	4,165	----	----	4,165	----	4,165
Shrimp, ocean	1,187,197	3,000	----	1,190,197	----	1,190,197
Mollusk:						
Abalone	4,963,556	----	----	4,963,556	----	4,963,556
Octopus	17,544	66	----	17,610	----	17,610
Oyster, eastern	12,925	----	----	12,925	----	12,925
Oyster, giant Pacific	787,502	----	----	787,502	----	787,502
Squid	19,025,879	----	----	19,025,879	----	19,025,879
Miscellaneous mollusk	2,154	----	----	2,154	----	2,154
Total pounds	236,298,367	1,817,233	220,324,480	458,440,080	133,093,337	591,533,417

* For origin of shipments refer to Table 6. Beginning in 1965 only tuna shipments are recorded.

TABLE 8
Monthly Landings and Shipments Into California During 1966

Species	January	February	March	April	May	June	July	August	September	October	November	December	Total pounds
LANDINGS:													
Fish:													
Anchovy	4,588,260	4,615,125	12,736,305	12,782,196	352,188	565,027	366,978	1,588,675	450,348	6,321,444	5,521,020	12,392,670	62,280,236
Barracuda, California	2,309	71	67,517	24,018	131,400	47,182	19,550	3,392	2,030	15,454	5,536	657	319,116
Blacksmith	----	----	----	----	----	120	2,000	700	4,100	----	----	----	6,920
Bonito, Pacific	297,665	59,140	7,365	5,425	6,564	181,724	899,606	10,684,499	1,040 330	2,892,613	2,121,529	952,034	19,148,494
Cabezon	2,346	1,300	784	1,208	381	441	179	220	253	617	2,173	2,607	12,599
Cabrilla, spotted	----	----	8,895	----	----	----	312	----	----	----	2,710	----	11,917
Carp	50,585	24,703	5,090	9,802	----	----	----	----	9,300	49,150	80,374	23,405	252,409
Croaker, white	140,455	65,328	88,354	45,500	36,917	21,280	35,835	99,231	25,154	125,975	38,007	68,546	791,082
Flounder	27,606	74,489	43,315	11,507	22,007	14,269	13,103	43,579	31,690	37,911	32,951	28,201	380,628
Flounder, arrowtooth	276	----	62	175	----	1,600	1,020	370	----	----	----	----	3,503
Flyingfish	----	----	----	85	3,139	28,207	16,179	7,438	1,249	65	----	----	56,362
Grouper	61,366	18,253	21,357	20,920	----	1,060	54	11,460	1,693	----	22,632	92,114	250,909
Hake, Pacific	3,691	1,005	43	1,372	4,585	15,466	16,430	14,270	----	----	12,140	----	69,002
Halfmoon	1,072	647	----	96	329	212	2,919	472	346	1,047	673	1,726	9,530
Halibut, California	106,565	96,586	95,356	74,172	85,280	120,628	109,140	102,078	41,401	42,045	54,748	83,410	1,011,412
Halibut, Pacific	----	----	----	----	----	195	452	24	----	----	----	----	671
Hardhead	76,246	79,720	3,020	2,760	----	----	----	----	11,750	12,405	40,120	31,000	257,021
Herring, Pacific	25,388	2,223	11,920	90,532	77,750	7,300	25,300	----	----	----	----	1,560	241,973
Lingcod	13,891	17,072	26,051	13,891	52,398	74,425	107,098	137,604	138,719	95,851	66,383	26,890	800,303
Mackerel, bullet	----	----	----	----	----	----	----	----	----	36,195	----	----	36,195
Mackerel, jack	1,085,329	1,822,256	2,119,241	3,695,185	9,797,219	7,801,394	1,112,038	4,577,767	1,680,656	2,838,078	1,694,918	2,338,328	40,862,409
Mackerel, Pacific	187,897	387,147	76,137	123,665	416,497	135,863	130,334	292,652	316,940	1,528,824	363,791	369,757	4,629,504
Opaleye	155	----	520	1,916	589	4,044	3,119	6,102	1,114	367	728	478	19,132
Perch	10,628	14,135	22,103	33,616	2,392	2,785	12,402	15,933	11,090	14,185	11,919	8,893	160,381
Pompano, Pacific	540	2,680	8,289	1,465	3,249	9,665	5,006	1,792	5,850	14,688	3,205	223	59,652
Rockfish	695,893	599,184	890,027	895,876	828,601	891,662	887,469	1,018,414	1,023,176	1,169,904	748,772	414,614	10,063,592
Sablefish	102,245	84,560	248,608	166,783	242,558	339,600	341,302	315,036	255,388	543,012	322,277	254,570	3,215,939
Salmon	----	----	----	281,100	748,063	2,908,823	3,906,723	1,164,646	437,340	----	----	----	9,446,995
Sanddab	35,201	47,675	61,860	83,167	70,576	54,167	78,279	66,974	82,174	71,491	38,721	26,213	720,101
Sardine	4,110	61,671	47,662	45,351	141,141	167,622	58,044	101,751	134,330	69,621	38,255	8,798	878,359
Sargo	----	160	----	----	----	----	----	----	----	960	----	----	1,120
Sculpin	7,923	6,504	7,421	4,774	9,919	16,255	15,849	12,197	8,464	8,519	4,659	6,015	108,499
Sea bass, giant	28,976	31,310	37,132	33,721	15,248	10,382	22,082	40,473	23,011	23,528	52,938	22,166	340,967
Seabass, white	69,866	110,217	135,749	49,791	124,610	88,553	51,376	251,027	62,125	140,912	115,001	138,620	1,337,850
Shark	36,133	20,903	19,854	28,571	80,995	119,011	40,881	56,017	56,229	62,801	76,405	55,987	653,790
Sheephead, California	3,531	1,777	1,247	420	1,294	358	564	1,884	359	2,178	1,355	1,017	15,984
Skate	12,692	11,746	21,649	13,948	13,701	8,969	11,054	9,495	12,981	15,357	16,774	5,648	154,014
Smelt	10,930	11,284	12,145	42,437	67,638	72,656	51,541	74,730	79,126	42,642	36,626	20,699	522,457
Smelt, whitebait	1,631	16,510	17,921	12,297	21,137	43,166	12,398	6,899	----	----	----	----	162,259
Sole, Dover	208,741	171,557	708,367	812,468	1,083,553	1,534,728	1,359,395	1,307,383	1,416,815	973,861	497,206	237,559	10,311,633

Sole, English	328,519	367,826	501,286	452,144	290,203	247,279	244,788	375,117	560,954	775,760	491,921	209,071	4,844,868
Sole, petrale	178,247	146,845	193,428	311,853	238,041	125,649	212,900	277,586	343,954	335,037	220,824	342,826	2,927,190
Sole, rex	79,989	109,789	147,351	140,645	87,308	92,869	110,450	141,094	221,222	230,524	116,130	158,028	1,635,399
Sole, sand	38,297	46,939	26,095	11,355	23,774	2,595	1,405	19,607	7,136	12,037	24,566	21,885	235,691
Sole, miscellaneous	1,352	2,867	2,184	1,155	2,964	2,747	2,842	3,027	813	1,383	745	3,878	25,957
Splittail	1,890	----	----	----	----	----	----	----	----	----	----	----	1,890
Swordfish	----	----	404	----	702	12,016	62,641	179,769	159,399	53,116	725	----	468,772
Tuna, albacore	----	----	----	----	----	----	1,361,873	4,303,381	6,138,062	5,466,323	741,159	178,414	18,189,212
Tuna, bigeye	----	----	16,666	----	----	----	----	----	----	----	----	----	16,666
Tuna, bluefin	129,601	----	---	2,735	----	5,282,226	10,793,889	17,795,582	499,453	312,736	239	3,945	34,820,406
Tuna, skipjack	3,092,795	883,748	7,193,527	3,472,112	3,640,840	4,629,874	9,296,845	4,355,421	1,849,265	3,637,826	3,674,268	5,362,740	51,089,261
Tuna, yellowfin	6,083,007	4,336,117	18,666,665	10,159,438	19,343,977	15,748,932	12,508,228	7,800,250	7,072,015	6,675,772	9,569,174	14,630,948	132,594,523
Turbot	9,787	13,663	10,487	4,150	10,735	2,550	3,465	8,220	6,270	5,070	5,865	3,065	83,327
Whitefish, ocean	708	252	377	33	----	162	58	344	110	286	234	145	2,709
Yellowtail, California	24,352	45,885	22,950	10,859	8,207	7,614	2,709	6,279	13,469	34,242	31,754	36,887	245,207
Miscellaneous	278	----	41	15	2,365	17,525	15,551	3,609	10	34	10	----	39,438
Miscellaneous (animal food)	87,040	82,999	187,170	193,762	200,121	406,437	428,187	278,100	143,520	166,069	130,898	75,920	2,380,223
Crustacean:													
Crab, market	1,836,600	2,904,100	2,382,313	1,535,430	647,127	89,345	4,605	----	----	----	227,048	2,749,822	12,376,390
Crab, rock	24,359	26,326	17,225	23,501	23,239	31,130	32,816	41,667	17,634	30,629	33,601	28,716	330,843
Lobster, spiny	68,790	49,730	26,040	17	----	----	----	----	----	142,764	119,508	82,239	489,088
Prawn, spot	535	786	131	----	112	97	----	----	----	----	978	936	3,575
Prawn, ridgeback	----	----	----	----	----	14,703	12,640	2,895	----	----	----	----	30,238
Shrimp, bay	----	----	----	----	----	2,400	575	----	940	250	----	----	4,165
Shrimp, ocean	----	----	----	----	135,151	485,271	472,700	97,075	----	----	----	----	1,190,197
Mollusk:													
Abalone	294,683	----	323,118	645,881	596,160	423,874	500,970	504,860	417,754	491,514	440,550	324,192	4,963,556
Octopus	2,232	3,522	4,054	1,380	2,378	732	1,041	624	430	93	738	386	17,610
Oyster, eastern	680	1,044	1,293	658	1,112	300	795	1,031	1,720	1,729	1,961	602	12,925
Oyster, giant Pacific	42,358	60,939	109,391	78,958	89,325	79,284	13,112	18,955	20,425	73,251	104,168	97,336	787,502
Squid	2,132,785	1,940,178	481,545	123,430	1,467,843	4,545,213	1,015,310	1,296,095	1,443,570	740,095	1,473,673	2,366,142	19,025,879
Miscellaneous mollusk	250	372	793	129	145	74	59	----	----	--	6	326	2,154
Total pounds	22,359,776	19,481,255	47,865,900	36,610,153	41,253,747	47,540,340	47,446,459	59,528,772	26,284,289	36,341,240	29,435,295	44,292,854	458,440,080
SHIPMENTS:*													
Fish:													
Tuna, albacore	2,725,375	2,406,291	5,384,765	5,998,855	3,342,567	2,934,767	1,052,391	6,166,148	5,314,097	7,238,243	6,429,118	6,727,009	55,719,626
Tuna, bigeye	38,132	125,111	330,827	409,236	380,440	622,094	----	243,350	149,575	202,400	228,564	131,903	2,861,632
Tuna, bluefin	---	----	843,381	----	1,196,445	1,078,978	----	----	----	----	----	----	3,118,804
Tuna, longtail	----	----	----	575	----	----	----	----	----	4,010	2,170	----	6,755
Tuna, skipjack	512,680	150,697	2,765,483	5,678,715	1,827,154	29,652	----	4,482	10,429	679,661	962,398	1,514,920	14,136,271
Tuna, yellowfin	2,086,531	4,489,478	6,594,323	7,314,185	8,743,260	9,893,388	1,023,858	907,845	1,703,166	4,874,079	4,293,651	5,326,485	57,250,249
Total pounds	5,362,718	7,171,577	15,918,779	19,401,566	15,489,866	14,558,879	2,076,249	7,321,825	7,177,267	12,998,393	11,915,901	13,700,317	133,093,337
Grand total	**27,722,494**	**26,652,832**	**63,784,679**	**56,011,719**	**56,743,613**	**62,099,219**	**49,522,708**	**66,850,597**	**33,461,556**	**49,339,633**	**41,351,196**	**57,993,171**	**591,533,417**

* For origin of shipments refer to Table 6. Beginning in 1965 only tuna shipments are recorded.

TABLE 9

Monthly Landings of Commercial Fishing Boats in the Eureka Area During 1966

Species	January	February	March	April	May	June	July	August	September	October	November	December	Total pounds
LANDINGS FROM:													
California waters:													
Fish:													
Flounder	139	3,256	2,078	3,231		309	260	11,908	8,867	14,133	8,189	852	53,422
Flounder, arrowtooth	276		62	175									513
Halibut, California								115					115
Halibut, Pacific						195	152	24					671
Lingcod	1,457	1,500	10,722	21,880	7,071	18,961	59,388	76,748	89,001	52,722	33,764	6,107	382,383
Mackerel, jack									835				835
Perch	1,592	7,348	6,173	9,096			2,077	1,751	5,655	3,923	2,238	775	46,139
Rockfish	55,224	75,942	109,180	112,106	67,519	206,111	258,483	209,851	278,768	195,345	118,748	39,429	1,811,713
Sablefish	46,454	27,480	97,352	47,977	66,643	142,628	142,481	103,541	141,667	382,138	206,197	143,778	1,518,836
Salmon				94,206	393,113	2,675,236	2,918,437	718,990	226,441				6,936,426
Sanddab	3,651	13,942	13,455	12,095	3,409	12,819	16,646	15,009	36,025	21,406	6,085	278	154,820
Shark	18	15	85					130	1,110	1,370	278		3,316
Skate						1,300	1,140						2,440
Smelt	152	1,667	237	1,242	19,671	28,743	36,516	65,970	26,130	1,979			188,320
Smelt, whitebait	1,651	15,888	17,096	11,419	16,635	38,118	12,093	6,899					149,579
Sole, Dover	93,418	76,182	255,922	256,380	172,892	1,459,677	1,196,242	1,063,316	1,122,150	843,794	335,179	150,138	6,930,090
Sole, English	42,400	117,666	132,956	204,966	72,004	115,312	69,851	106,556	255,247	159,367	193,312	11,094	1,869,134
Sole, petrale	88,167	51,436	61,508	93,842	26,012	23,113	26,729	85,163	152,986	166,904	125,436	250,561	1,155,427
Sole, rex	2,499	48,142	47,170	62,501	24,047	61,156	72,683	88,370	140,590	147,140	72,876	105,047	886,741
Sole, sand	651	188							1,038	807			2,684
Sole, miscellaneous							11	8			51		70
Tuna, albacore							5,617	306,190	1,182,297	125,630			1,619,734
Turbot								210	1,100	588			2,198
Miscellaneous					2,324	17,369	15,372	3,159					38,524
Miscellaneous (animal food)	9,755	7,386	26,612	11,759	73,665	295,321	325,167	160,755	78,460	52,533	18,611	9,094	1,099,421
Crustacean:													
Crab, market	1,801,193	2,896,930	2,378,366	1,542,702	643,746	87,968	1,605				4,852	2,692,990	12,046,652
Shrimp, ocean	----	----	----	----	131,934	184,165	172,700	97,075					1,186,171

Mollusk:												
Octopus	70	215	178	----	75,226	62,954	----	40	----	140	----	643
Oyster, giant Pacific	12,405	38,487	86,889	59,038	----	----	----	----	53,226	77,319	73,364	535,908
Miscellaneous mollusk	----	----	500	----	----	----	----	----	----	----	326	826
Total pounds	2,187,664	3,383,934	3,297,102	2,564,785	2,002,911	5,432,338	5,577,283	3,215,381	3,718,940	2,526,005	1,203,575	3,513,833	38,623,751
Waters north of State:												
Fish:												
Flounder	----	----	508	202	----	----	----	----	----	115	40	----	925
Lingcod	----	----	867	573	1,102	1,281	----	----	4,077	513	436	70	8,919
Rockfish	----	----	13,115	20,319	14,903	5,399	----	----	25,597	4,797	7,753	8,605	100,548
Sablefish	----	----	5,461	10,757	3,697	1,525	----	----	3,376	2,940	9,378	33,322	70,056
Sanddab	----	----	479	40	----	----	----	----	----	68	105	----	682
Sole, Dover	----	----	60,052	135,119	59,023	67,494	----	----	106,363	52,530	92,965	68,804	648,650
Sole, English	----	----	24,321	22,316	1,402	108	----	----	1,971	560	14,078	----	65,356
Sole, petrale	----	----	5,499	3,584	3,703	194	----	----	2,372	1,523	3,655	21,028	41,558
Sole, rex	----	----	5,411	3,404	1,073	1,910	----	----	695	1,280	3,611	9,301	26,685
Miscellaneous (animal food)	----	----	17,922	55,033	8,591	15,074	----	----	16,110	14,716	28,722	21,716	177,884
Crustacean:													
Crab, market	----	----	----	50	----	----	----	----	----	----	----	----	50
Shrimp, ocean	----	----	----	----	3,000	----	----	----	----	----	----	----	3,000
Mollusk:													
Octopus	----	----	66	----	----	----	----	----	----	----	----	----	66
Total pounds	----	----	140,361	251,697	96,494	92,985	----	----	160,561	78,632	160,743	162,906	1,144,379
Grand total	2,187,664	3,383,934	3,437,463	2,816,482	2,099,405	5,525,323	5,577,283	3,215,381	3,879,501	2,604,637	1,364,318	3,676,739	39,768,130

TABLE 10

Monthly Landings and Shipments of Commercial Fish Into the San Francisco Area During 1966 *

Species	January	February	March	April	May	June	July	August	September	October	November	December	Total pounds
LANDINGS FROM:													
California waters:													
Fish:													
Anchovy	- -	---	15,780	350	800	- -	5,918	9,165	24,190	3,520	7,840	600	68,163
Bonito, Pacific	- -	---	- -	-	---	- -	---	---	827	1,541	---	28	2,396
Cabezon	675	697	658	-	---	42	136	---	---	---	---	---	2,208
Carp	50,585	24,703	5,090	9,802	---	---	---	---	9,300	49,150	80,374	23,405	252,409
Croaker, white	586	895	815	1,330	490	360	430	125	2,165	2,481	2,235	430	12,342
Flounder	20,865	46,665	26,480	3,200	10,153	6,452	4,462	22,189	17,425	20,821	21,612	18,504	218,828
Flounder, arrowtooth	---	-	-	---	- - -	1,600	1,020	370	- -	---	---	- -	2,990
Hake, Pacific	- -	---	-	385	1,555	14,500	12,360	2,940	---	---	---	---	31,740
Halibut, California	46,155	31,341	26,548	187	930	6,363	14,347	23,243	11,668	16,604	24,558	32,079	234,026
Hardhead	76,246	79,720	3,020	2,760	- -		---	---	11,750	12,405	40,120	31,000	257,021
Herring, Pacific	25,388	2,223	720	130	---	- - -	-	---	---	---	---	1,560	30,021
Lingcod	6,749	3,964	3,885	8,232	30,693	37,639	34,337	45,604	40,927	32,090	16,330	8,857	269,307
Mackerel, jack	---	-	-	-	-		8	140	135	---	---	---	283
Perch	1,527	1,386	2,846	3,785	--	- -	703	518	1,567	598	1,920	814	15,664
Pompano, Pacific			---		-	- -	- -	---	16	6	--	---	22
Rockfish	171,295	96,123	127,301	67,986	125,418	139,468	143,010	134,775	213,382	249,306	99,489	45,251	1,612,834
Sablefish	42,105	54,520	137,515	75,515	102,583	105,123	93,018	176,050	90,399	81,084	53,490	20,120	1,031,522
Salmon	-			136,380	358,758	165,508	944,855	426,236	206,739	-	-	---	2,238,476
Sanddab	10,180	14,040	14,075	42,085	34,565	23,137	42,626	39,032	27,691	27,480	15,485	5,870	296,266
Seabass, white	-	-	- -	---		---	-	122	- -	254	32	95	503
Shark	14,216	5,093	5,614	115	6,218	10,728	2,285	4,983	8,971	21,598	18,021	12,135	109,977
Skate	5,400	6,250	8,200	5,000	6,200	2,100	2,750	4,250	8,250	11,900	8,400	3,800	72,500
Smelt	7,724	8,346	9,144	4,884	11,907	18,010	12,578	8,151	10,516	5,983	540	- -	97,783
Smelt, whitebait		822	825	878	4,502	5,348	305	-	-	-	- -	- -	12,680
Sole, Dover	110,703	95,375	382,548	410,269	527,078	271,502	210,613	218,892	178,617	63,567	60,417	12,602	2,542,183
Sole, English	201,379	123,349	104,720	97,867	126,162	79,270	125,601	225,730	248,545	255,799	221,492	94,365	1,904,279
Sole, petrale	67,205	56,955	52,315	84,727	120,801	45,930	138,495	134,293	159,294	144,613	71,715	67,310	1,143,653
Sole, rex	28,870	26,875	39,380	32,755	26,990	12,973	27,652	43,194	61,512	63,447	21,853	10,223	395,724
Sole, sand	32,066	24,350	13,515	1,120	2,010	1,430	1,000	19,607	5,263	10,380	20,199	18,165	149,105
Sole, miscellaneous	---	---	---	---	---	---	---	---	---	117	---	---	117

Splittail	1,890	----	----	----	----	----	----	----	----	----	----	----	1,890
Tuna, albacore	----	----	----	----	----	----	2,855	74,071	944,378	395,063	4,897	----	1,421,264
Turbot	8,180	11,195	8,595	2,185	4,995	2,275	3,465	7,830	4,695	4,475	5,695	3,015	66,600
Miscellaneous	----	----	41	----	----	----	----	----	----	----	----	----	41
Crustacean:													
Crab, market	31,404	6,182	1,606	1,186	3,003	1,377	----	----	----	----	220,614	55,468	320,840
Shrimp, bay	----	----	----	----	----	2,400	575	----	940	250	----	----	4,165
Shrimp, ocean	----	----	----	----	220	300	----	----	----	----	----	----	520
Mollusk:													
Abalone	----	----	----	750	----	----	----	4,471	6,000	2,250	125	----	13,596
Octopus	1,214	1,870	3,235	1,015	1,818	417	486	489	430	93	277	135	11,479
Oyster, eastern	680	1,044	1,293	658	1,112	300	795	1,031	1,720	1,729	1,961	602	12,925
Oyster, giant Pacific	22,092	20,990	20,300	18,192	15,930	14,846	11,814	16,186	17,286	17,945	25,525	20,471	221,577
Miscellaneous mollusk	----	30	----	----	----	----	----	----	----	----	----	----	30
Total pounds	985,379	745,006	1,016,064	1,013,728	1,524,921	969,398	1,838,499	1,643,687	2,314,598	1,496,549	1,045,216	486,904	15,079,949
Waters south of State:													
Fish:													
Tuna, albacore	----	----	----	----	----	----	25,720	----	----	----	----	----	25,720
Tuna, bluefin	----	----	----	----	----	----	----	----	----	111,260	----	----	111,260
Tuna, skipjack	----	----	----	----	----	2,900	----	----	----	24,960	----	----	27,860
Tuna, yellowfin	----	----	----	----	----	475,362	----	----	----	224,086	----	----	699,448
Total pounds	----	----	----	----	----	478,262	25,720	----	----	360,306	----	----	864,288
SHIPMENTS:													
Fish:													
Tuna, yellowfin	----	----	----	----	----	----	102,740	239,950	----	----	----	----	342,690
Total pounds	----	----	----	----	----	----	102,740	239,950	----	----	----	----	342,690
Grand total	985,379	745,006	1,016,064	1,013,728	1,524,921	1,447,660	1,966,959	1,883,637	2,314,598	1,856,855	1,045,216	486,904	16,286,927

* Includes Sacramento area landings.
For origin of shipments refer to Table 6. Beginning in 1965 only tuna shipments are recorded.

TABLE 11

Monthly Landings of Commercial Fishing Boats in the Monterey Area During 1966

Species	January	February	March	April	May	June	July	August	September	October	November	December	Total pounds
LANDINGS FROM:													
California waters:													
Fish:													
Anchovy	297,300	31,500	438,750	366,370	234,950	298,900	156,070	1,161,850	265,156	6,180,540	3,179,110	4,029,540	16,640,036
Bonito, Pacific	85						83	3,438	1,508	3,498	2,551	2,327	16,490
Cabezon			10	1,090	352	125					33	35	1,645
Croaker, white	7,050	8,288	10,476	3,090	3,889	9,386	17,193	2,265	7,100	6,284	6,883	15,501	98,045
Flounder	4,288	7,209	2,503	1,232	8,487	6,828	6,500	8,290	4,048	1,891	1,854	6,907	60,097
Hake, Pacific	3,997	1,005			987	3,030	845	4,070	11,330				24,934
Halibut, California	1,257	1,969	1,894	1,026	14,226	23,618	16,786	23,049	5,097	448	1,039	2,250	92,656
Herring, Pacific			11,260	90,102	77,750	7,300	25,300						211,952
Lingcod	3,087	1,758	5,582	9,856	10,345	11,443	10,975	11,211	3,109	7,511	8,572	6,376	92,825
Mackerel, jack		2,000	5,600	5,100	195	246,020	17,145	160,266	524,720	187,200	87,585		1,234,731
Perch	208	1,447	3,412	11,279	10		156	765	525	235	107		18,114
Pompano, Pacific	29	5	199	551	2,178	3,558	512	145	3,120	351			10,669
Rockfish	199,189	210,666	331,747	368,865	368,759	305,878	327,011	323,093	279,088	340,273	216,847	114,187	3,385,933
Sablefish	14,675	2,570	8,055	32,534	69,515	90,154	105,555	34,980	19,946	77,085	53,212	57,350	593,831
Salmon				50,080	63,170	40,764	18,392	12,269	3,843				188,518
Sanddab	20,705	19,456	28,548	25,623	30,832	18,033	16,061	9,391	18,323	25,375	17,049	20,065	249,464
Sardine						2,311	9,671		949				12,964
Sea bass, giant		128											128
Seabass, white	182	71	54	18	32	162	203	4,985	295	348	16,166	1,040	23,586
Shark	4,719	1,311	434	297	3,403	6,217	7,270	5,764	2,144	6,539	10,099	7,787	56,014
Skate	7,292	5,329	12,987	8,523	7,255	5,129	6,974	1,983	4,545	3,440	2,654	1,848	70,959
Smelt	2,216	1,061	381	5,131	602	1,818	2,175	365	1,172	30	1,053	280	16,287
Sole, Dover	7,720		1,870	12,245	14,450	16,705	31,665	14,005	8,465	13,920	8,320	6,015	135,380
Sole, English	21,485	27,669	49,716	70,835	54,369	32,085	39,385	20,970	40,593	35,205	35,395	25,315	452,922
Sole, petrale	17,450	24,389	42,178	62,977	46,270	21,380	15,880	15,157	16,857	14,910	17,618	3,197	299,493
Sole, rex	16,405	20,180	36,890	28,660	19,285	6,870	6,550	2,985	14,065	14,210	11,220	26,670	203,990
Sole, sand	215	1,956	210		1,700	550	105		835	470	110		6,475
Sole, miscellaneous	487	1,378	1,520	150	696	646	559	555	128	557	177	2,290	9,743
Swordfish									650	121			771
Tuna, albacore							7,345	1,999	1,898,508	954,134	129,654		2,994,640
Tuna, skipjack									1,500				1,500
Turbot			40		180				175				395
Miscellaneous						130	65						195

Crustacean:												
Crab, market	630	684	232	110	40	----	----	----	----	885	330	2,911
Crab, rock	----	36	259	----	----	----	----	----	----	256	----	551
Prawn, spot	535	786	131	----	----	----	----	----	----	978	936	3,366
Mollusk:												
Octopus	948	1,404	575	365	510	105	480	----	----	319	251	4,957
Oyster, giant Pacific	----	----	----	----	----	----	----	----	----	----	1,978	1,978
Squid	2,325	9,748	905	13,740	1,357,823	4,410,713	982,610	1,295,895	1,443,570	740,095	----	11,207,349
Miscellaneous mollusk	250	342	293	129	145	74	59	----	----	6	----	1,298
Total pounds	630,299	388,006	999,702	1,170,295	2,394,448	5,597,777	1,833,174	3,133,305	4,603,334	8,614,700	4,332,775	38,427,792
Waters south of State:												
Fish:												
Tuna, albacore	----	----	----	----	----	----	----	749	----	----	----	749
Total pounds	----	----	----	----	----	----	----	749	----	----	----	749
Grand total	630,299	388,006	999,702	1,170,295	2,394,448	5,597,777	1,833,174	3,134,054	4,603,334	8,614,700	4,332,775	38,428,541

TABLE 12

Monthly Landings of Commercial Fishing Boats in the Santa Barbara Area During 1966

Species	January	February	March	April	May	June	July	August	September	October	November	December	Total pounds
LANDINGS FROM:													
California waters:													
Fish:													
Anchovy	2,[illegible]5[illegible]	[illegible]9,2[illegible]	466,215	550,030	5,883	5,542	10,980	8,610	6,300	3,950	2,223,820	3,420,230	9,039,290
[illegible]	24		2,841		-				1,278	1,459	40	346	5,988
[illegible]	965			-		288	38,440	15,052	131,764	246,414	51,068	10,819	494,350
[illegible]													
Cabezon	1,671	693	116	116	29	274	43	220	253	617	2,110	2,561	8,735
Croaker, white	----	----	----	----	----	----	258	----	----	----	----	----	258
[illegible]	2,114	17,[illegible]50	11,[illegible]26	3,642	3,367	680	1,881	1,392	1,350	951	1,256	1,938	47,356
[illegible]											12,140	-	12,140
[illegible]	25,[illegible]00	[illegible]8,845	[illegible]8,[illegible]05	29,942	24,931	20,096	30,021	22,459	12,981	12,629	18,298	30,499	285,596
[illegible]	2,[illegible]58	[illegible]738	[illegible]445	3,176	2,907	5,066	2,368	1,031	1,446	2,590	7,125	4,770	44,380
[illegible]		51[illegible],[illegible]87[illegible]	555,520	1,[illegible]8[illegible],097	955,690		129,186	1,055,870	870,145	1,221,932	126,076		6,790,386
Mackerel, jack													
				5,[illegible]50	8,960		29,300	26,440	199,435	265,980			545,475
Mackerel, Pacific				2,963	102		1,535	3,267	1,332	2,753	3,055	1,832	23,146
Perch	4,07[illegible]	2,500	1,924				2,835	155	18	3,245	2,458	-	12,076
[illegible]			76			3,415							
Pompano, Pacific													
Rockfish	205,[illegible]50	144,[illegible]58	184,[illegible]90	208,[illegible]10	126,655	153,663	120,[illegible]41	246,100	205,329	311,823	244,739	132,252	2,264,974
Sablefish	[illegible]5	199	225		120	150	248	465		165	-		1,658
				731	22,712	27,315	25,031	7,106	306	-		-	83,204
Salmon				1,301		155				165			6,477
Sanddab		2,[illegible]1	1,955	3,733	40,880				9,110	33,600	19,844		107,497
Sardine								8		27	104	389	1,298
Sea bass, giant	[illegible]5	15	12	20	347	173	132						
Seabass, white	15,975	5,[illegible]02	1,582	1,688	9,097	11,221	15,630	23,369	11,208	34,155	38,559	44,901	219,177
Shark	5,[illegible]18	3,732	3,955	3,370	23,313	29,790	8,194	5,020	5,659	8,927	17,648	10,559	125,016
Sheepshead, California			[illegible]3	10							60	53	153
Skate		167	300	38	246	58						-	809
Smelt					21,220	8,550			39,820		28		69,618
Sole, Dover			1,975	555	9,852	19,350	10,875	11,170	1,220	50	25	-	55,072
Sole, English	62,[illegible]55	99,[illegible]13	126,287	52,233	36,908	20,501	9,948	21,651	14,628	24,829	27,644	18,297	544,878
Sole, petrale	5,525	11,050	31,[illegible]02	65,096	41,186	34,732	31,796	12,373	12,115	7,057	2,400	730	285,999
Sole, rex	[illegible]245	11,922	28,260	13,[illegible]25	15,654	9,680	3,565	6,545	1,360	1,447	6,570	6,787	122,000
Sole, sand	5,345	20,451	12,370	10,235	20,064	615				380	1,257	3,720	77,427
Sole, miscellaneous	851	1,132	291	192	269	21	631	412	348	589	187	1,375	6,304

Swordfish	----	----	----	----	----	----	45,243	63,671	24,324	----	----	133,238
Tuna, albacore	----	----	----	----	----	11,741	5,478	418,467	971,780	143,746	----	1,551,212
Tuna, skipjack	----	----	----	----	----	----	----	531	459	----	----	990
Turbot	1,485	2,468	1,852	1,965	5,540	275	180	----	7	170	----	13,942
Yellowtail, California	----	----	----	----	20	----	----	----	70	----	----	90
Miscellaneous	----	----	----	----	----	----	----	----	34	----	----	34
Miscellaneous (animal food)	77,285	75,613	142,636	96,970	117,865	96,039	102,720	117,345	48,950	98,820	83,565	45,110	1,102,918
Crustacean:												
Crab, market	73	304	2,109	1,382	338	----	----	----	----	----	697	1,034	5,937
Crab, rock	8,823	7,809	4,236	10,293	5,541	8,583	15,168	10,732	5,539	9,842	10,646	9,136	106,539
Lobster, spiny	23,064	15,747	10,650	----	----	----	----	----	----	22,985	31,150	19,923	123,519
Prawn, spot	----	----	----	----	112	97	----	----	----	----	----	----	209
Prawn, ridgeback	----	----	----	----	----	14,703	12,640	2,895	----	----	----	----	30,238
Shrimp, ocean	----	----	----	----	----	506	----	----	----	----	----	----	506
Mollusk:												
Abalone	189,958	----	228,917	409,428	281,274	238,299	323,137	316,365	275,556	338,207	300,151	219,913	3,121,205
Octopus	----	33	----	----	50	210	75	95	----	----	----	----	463
Oyster, giant Pacific	7,861	1,462	2,202	1,728	1,169	1,484	1,238	2,769	3,139	2,080	1,324	1,523	28,039
Squid	177,720	443,040	57,530	----	10,000	8,000	1,700	200	----	----	221,068	385,780	1,305,038
Grand total	**3,100,785**	**1,489,611**	**1,915,452**	**2,835,858**	**1,790,434**	**702,439**	**952,183**	**2,003,117**	**2,319,918**	**3,687,642**	**3,602,238**	**4,404,477**	**28,804,154**

TABLE 13

Monthly Landings and Shipments of Commercial Fish Into the Los Angeles Area During 1966

	[illegible]	[illegible]	[illegible]	April	May	June	July	August	September	October	November	December	Total pounds
LANDINGS FROM:													
California waters:													
Fish:													
[illegible]	[illegible]	[illegible]	[illegible]	21,885,148	110,555	260,585	194,010	409,050	154,702	133,434	110,250	1,942,300	36,532,747
Barracuda, California	----	----	15,305	18,666	123,170	38,280	17,661	2,108	348	40	20	277	213,935
Blackfish	----	----	----	----	----	120	2,000	700	4,100	----	----	----	6,920
Bonito, Pacific	200,175	58,371	6,340	5,125	5,342	177,559	296,781	9,696,917	904,245	2,623,420	2,047,496	919,720	17,002,573
Cabezon	----	----	----	----	----	----	----	----	----	----	----	11	11
[illegible]	[illegible]	39,475	78,280	44,761	72,653	10,994	17,607	96,397	15,697	117,240	28,889	52,610	676,903
[illegible]	[illegible]	[illegible]	[illegible]	85	5,174	28,207	16,179	7,438	1,249	65	----	[illegible]	56,362
[illegible]	[illegible]	[illegible]	[illegible]	96	329	212	2,940	472	316	1,047	673	1,726	9,485
[illegible]	1,172	552	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Halibut, California	23,778	10,309	6,955	10,119	1,766	2,177	529	2,847	1,696	1,792	5,589	13,527	87,515
Lingcod	38	62	261	174	160	35	----	----	----	205	96	545	1,576
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	36,195	[illegible]	[illegible]	36,195
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8,826,334	7,555,874	1,265,699	3,361,191	281,821	1,428,946	1,481,257	2,338,328	32,821,171
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	76,117	118,305	291,152	145,153	390,421	265,572	115,749	1,233,576	362,196	369,757	1,033,092
[illegible]	55	[illegible]	329	1,946	589	1,011	2,074	1,386	1,114	367	728	458	13,671
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	23	2,096	5,317	4,917	2,011	6,057	3,954	1,347	43,793
[illegible]	54	[illegible]	[illegible]	914	1,071	2,792	1,629	1,492	2,696	11,086	767	223	36,885
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	50,961	9,048	5,308	6,435	28,170	28,967	38,892	199,092
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	16
Sablefish	16	----	----	----	----	----	----	8	45	8	----	----	61
Salmon	----	----	----	----	----	----	----	61	11	7	----	----	129
Sanddab	----	12	----	----	4	30	4						
[illegible]	1,110	[illegible]	[illegible]	[illegible]	96,611	165,151	38,820	101,754	123,944	36,021	17,611	8,798	742,618
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	960	[illegible]	[illegible]	960
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1,245	[illegible]	2,146	1,826	1,560	4,176	6,889	5,203	1,165	607	136	451	26,229
[illegible]	128	[illegible]	320	307	340	1,219	658	178	30	108	243	117	3,674
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	5,552	[illegible]	844	5,451	15,466	25,278	202,186	31,167	11,971	18,165	26,193	346,372
Shark	2,159	[illegible]	1,811	11,910	24,522	15,978	12,118	30,567	31,006	17,220	18,384	16,825	230,275
Sheephead, California	773	337	642	242	1,151	217	270	168	109	629	349	129	4,948
Skate	[illegible]	[illegible]	[illegible]	17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5,720	[illegible]	5,767
Smelt	317	210	2,373	28,210	14,235	15,535	215	208	1,488	34,650	35,005	20,119	149,895
Sole, Dover	----	----	----	----	258	----	----	----	----	----	----	----	258

Sole, English	-	218	2,656	4,927	258	----	----	210	----	----	----	----	8,299
Sole, petrale	-	45	322	624	69	----	----	----	----	----	----	----	1,060
Sole, rex	-	----	----	----	259	----	----	----	----	----	----	----	259
Sole, miscellaneous	-	73	198	117	62	153	30	298	----	----	24	100	979
Swordfish	-	14	----	----	----	12,016	59,884	117,180	87,535	26,343	725	----	303,683
Tuna, albacore	-	10	----	----	20	----	----	----	----	----	----	----	30
Tuna, bluefin	-	----	----	----	----	----	326,673	1,427,408	1,051,285	2,526,221	209,721	152,583	5,693,891
Tuna, skipjack	-	----	----	----	----	23,855	778,504	1,264,354	135,527	----	----	----	2,202,240
Tuna, yellowfin	-	----	----	----	----	----	----	3,645	142,835	1,841	788	----	149,109
Turbot	-	10	----	----	----	----	----	775	----	----	----	----	775
Whitefish, ocean	-	25	----	----	----	----	13	----	----	----	14	----	52
Yellowtail, California	-	----	56	105	117	2,816	289	1,578	3,668	8,743	2,043	221	19,726
Miscellaneous	-	----	----	10	25	22	7	10	----	----	----	----	74
Crustacean:													
Crab, rock	-	14,130	11,208	12,074	17,598	22,498	17,648	30,591	11,675	18,255	19,383	16,825	207,536
Lobster, spiny	-	31,871	7,681	----	----	----	----	----	----	53,158	50,786	36,703	200,169
Mollusk:													
Abalone	-	61,050	10,982	132,043	211,127	116,255	111,216	105,570	61,105	68,532	93,573	72,381	1,189,834
Squid	-	1,952,740	423,110	109,690	100,020	96,500	31,000	----	----	----	332,680	1,980,362	6,513,192
Total pounds	-	5,826,300	7,981,749	14,197,627	14,862,651	10,099,113	8,829,809	3,632,419	17,151,141	3,178,002	8,423,825	4,875,602	11,014,851	110,073,089
Waters north of State:													
Fish:													
Tuna, albacore	-	----	----	----	----	----	----	----	232,348	283,495	70,274	----	586,117
Total pounds	-	----	----	----	----	----	----	----	232,348	283,495	70,274	----	586,117
Waters south of State:													
Fish:													
Barracuda, California	-	2,285	47,035	2,317	107	1,003	1,130	999	404	13,955	4,293	----	73,528
Bonito, Pacific	-	----	210	----	----	----	561,835	----	----	----	----	9,355	571,400
Cabrilla, spotted	-	----	8,895	----	----	----	----	----	----	----	----	----	8,895
Grouper	-	44,030	18,253	13,651	20,920	1,060	----	11,460	----	----	705	75,715	185,794
Halibut, California	-	2,568	8,043	19,127	25,586	33,361	33,728	18,768	9,569	3,892	5,484	18	160,144
Lingcod	-	----	----	110	----	----	----	----	----	----	220	60	390
Perch	-	----	----	530	32	1,123	250	----	----	----	----	----	1,935
Rockfish	-	855	4,335	5,460	13,425	160	3,055	----	6,202	1,237	2,171	1,580	13,495	51,915
Sargo	-	----	160	----	----	----	----	----	----	----	----	----	----	160
Sculpin	-	----	----	5	8	----	47	23	47	48	72	----	----	250

TABLE 13—Continued

Monthly Landings and Shipments of Commercial Fish Into the Los Angeles Area During 1966

Species	January	February	March	April	May	June	July	August	September	October	November	December	Total pounds
LANDINGS FROM:													
Waters south of State:													
Fish:													
[illegible]	22,928	31,611	25,357	31,500	13,766	8,039	20,517	39,397	20,738	22,635	35,690	15,353	286,961
Seabass, white	58,252	87,779	136,799	34,882	84,933	46,946	290	513	11,894	76,650	29,607	49,731	592,133
Shark	315	570	1,185	224	965	1,335	----	----	----	2,615	4,805	1,294	13,308
Sheephead, California	----	----	18	----	----	37	235	321	102	115	40	----	868
Skate	----	----	162	340	----	382	190	262	186	17	----	----	1,539
Swordfish	----	----	----	----	----	----	346	----	----	1,170	----	----	1,516
[illegible]	----	----	----	----	----	----	237,774	210,879	25,554	----	----	----	474,207
Tuna, bigeye	----	----	16,666	----	----	----	----	----	----	----	----	----	16,666
Tuna, bluefin	----	----	----	2,735	----	5,240,481	8,000,962	11,935,395	343,697	1,909	----	3,945	25,529,124
Tuna, skipjack	2,[illegible]	[illegible]	5,[illegible]	2,051,189	3,015,549	2,051,915	6,595,866	3,101,139	1,287,576	1,800,113	3,196,632	4,148,754	35,712,695
Tuna, [illegible]	3,[illegible]	3,[illegible]	18,[illegible]	8,205,277	14,573,187	10,830,279	9,681,810	5,052,714	1,187,586	2,991,678	5,701,575	9,522,115	93,458,792
Whitefish, [illegible]	260	----	315	----	----	234	----	180	----	275	145	----	1,138
Yellowtail, California	20,366	44,121	21,822	8,235	6,931	2,631	35	2,763	8,656	18,128	21,268	36,269	191,825
Miscellaneous	----	----	----	----	----	----	----	134	----	----	----	----	134
Total pounds	[illegible]	[illegible]	[illegible]	10,[illegible]	17,730,625	18,221,244	25,119,841	20,372,274	5,891,561	4,937,207	8,996,273	13,876,171	157,335,317
SHIPMENTS:*													
Fish:													
Tuna, albacore	4,735,[illegible]	[illegible]	[illegible]	5,[illegible]	[illegible]	2,934,767	1,052,391	5,984,159	1,633,007	5,694,825	4,639,687	6,727,009	51,444,198
Tuna, bigeye	8,[illegible]	125,111	[illegible]	409,236	486,140	622,991		243,350	119,575	202,100	228,564	131,903	2,861,632
Tuna, bluefin			[illegible]		1,196,145	1,078,978							3,118,804
Tuna, [illegible]				575						4,010	2,170		6,755
Tuna, skipjack	512,[illegible]	150,997	2,[illegible]	5,[illegible]	1,827,151	29,652		1,182	10,129	679,661	962,398	1,511,920	11,136,271
Tuna, yellowfin	1,907,500	1,[illegible]	4,[illegible]	7,[illegible]	8,[illegible]	9,893,288	921,118	667,895	1,703,166	4,273,980	3,890,847	5,326,485	55,630,963
Total pounds	5,[illegible]	7,[illegible]	15,[illegible]	13,[illegible]	15,[illegible]	14,558,879	1,973,509	6,904,886	6,496,177	10,854,576	9,723,666	13,700,317	127,198,623
Grand total	17,508,255	19,749,722	50,656,708	44,640,837	43,319,004	41,609,902	30,725,769	44,428,301	15,798,091	24,499,403	23,665,815	38,591,339	395,193,146

* For origin of shipments refer to Table 6. Beginning in 1965 only tuna shipments are recorded.

TABLE 14

Monthly Landings and Shipments of Commercial Fish Into the San Diego Area During 1966

Species	January	February	March	April	May	June	July	August	September	October	November	December	Total pounds
LANDINGS FROM:													
California waters:													
Fish:													
Barracuda, California	----	71	174	2,435	3,443	5,727	759	73	----	----	680	34	13,396
Bonito, Pacific	86,282	535	28	----	337	3,427	2,467	677,119	28,657	17,731	20,142	5,817	792,366
Croaker, white	588	670	783	380	465	540	347	379	192	----	----	5	4,349
Hake, Pacific	24	----	43	----	----	121	----	----	----	----	----	----	188
Halfmoon	----	95	----	----	----	----	----	----	----	----	----	----	95
[illegible]	[illegible]	[illegible]	[illegible]	25	667	1,115	2,852	3,014	1,853	5,148	5,246	5,055	49,647
Lingcod	----	----	5	----	120	----	----	10	189	----	----	165	489
Mackerel, jack	----	----	----	----	15,000	----	----	----	----	----	----	----	15,000
Mackerel, Pacific	----	150	120	----	16,385	710	613	640	1,756	29,268	1,295	----	50,937
Opaleye	----	----	----	----	----	----	1,045	4,716	----	----	----	----	5,761
Perch	----	297	283	419	864	439	4,614	1,715	----	619	645	1,125	11,020
Rockfish	28,413	27,529	31,303	32,906	33,444	35,045	28,175	31,740	13,140	7,857	19,210	12,040	300,802
Sablefish	----	----	----	----	----	20	----	----	----	----	----	----	20
Salmon	----	----	----	----	310	----	----	----	----	----	----	----	310
Sanddab	665	24	648	2,023	1,766	293	2,939	3,481	424	----	----	----	12,263
Sardine	----	----	1,150	----	3,650	130	9,550	----	----	----	800	----	15,280
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5,107	[illegible]	180	6,578	7,846	1,523	5,561	58,236
[illegible]	[illegible]	[illegible]	[illegible]	264	183	288	678	14	310	202	68	17	2,386
Seabass, white	4,568	7,662	1,219	7,924	24,642	6,574	4,195	10,233	941	710	2,114	14,125	84,907
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sheephead, California	2,406	1,338	597	208	5	104	50	212	80	1,434	906	835	8,175
Shiner	502	----	----	----	----	----	----	36	----	----	----	----	554
Sole, miscellaneous	----	284	265	696	1,937	1,924	1,608	1,754	37	120	6	113	8,744
Swordfish	----	----	----	----	----	----	1,751	15,641	7,543	1,158	----	----	26,093
Tuna, albacore	----	----	----	----	----	----	221,954	1,958,392	374,182	210,000	96,130	----	2,860,658
Tuna, bluefin	----	----	----	----	----	----	----	----	106	----	239	----	345
Tuna, skipjack	----	----	----	----	----	----	----	----	20,193	----	1,989	----	22,182
Tuna, yellowfin	----	----	----	----	----	----	----	----	1,528	----	82	----	1,610
Turbot	112	----	----	----	----	----	----	----	----	----	----	50	162
Whitefish, ocean	508	29	32	33	----	139	45	136	----	11	----	----	933
Yellowtail, California	402	----	563	1,348	999	1,344	1,741	1,426	684	6,390	1,050	117	16,064
Miscellaneous	----	----	----	5	16	4	----	6	10	----	10	----	51
Crustacean:													
Crab, rock	1,906	2,960	1,142	1,111	[illegible]	48	[illegible]	281	120	2,532	3,136	2,755	16,057
Lobster, spiny	17,855	11,[illegible]	7,709	17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	66,621	37,572	25,613	165,400

Mollusk:													
Abalone	40,675	----	53,219	53,660	73,759	39,320	63,617	78,454	75,093	82,525	46,701	31,898	638,921
Octopus	----	----	----	----	----	----	----	----	----	----	2	----	2
Squid	----	300	----	----	----	----	----	----	----	----	----	----	300
Total pounds	153,778	72,801	112,236	118,570	197,877	127,325	363,213	2,798,062	543,248	444,254	247,311	110,957	5,289,632
Waters north of State:													
Fish:													
Tuna, albacore	----	----	----	----	----	----	----	----	----	----	86,737	----	86,737
Total pounds	----	----	----	----	----	----	----	----	----	----	86,737	----	86,737
Waters south of State:													
Fish:													
Barracuda, California	----	----	4,102	900	4,380	2,172	----	212	----	----	503	----	12,269
Bonito, Pacific	645	----	397	----	885	450	----	261,973	329	----	272	3,968	268,919
Cabrilla, spotted	----	----	----	----	----	----	312	----	----	----	2,710	----	3,022
Croaker, white	----	----	----	----	20	----	----	65	----	----	----	----	85
Grouper	17,336	----	7,706	----	----	----	54	----	1,693	----	21,927	16,399	65,115
Halibut, California	----	45	6,090	10,286	7,460	32,927	25,846	17,782	1,277	----	----	----	101,713
Lingcod	----	----	4	----	----	----	30	----	----	----	----	----	34
Perch	----	----	----	----	270	----	----	----	----	----	----	----	270
Rockfish	3,439	----	3,310	2,185	63	3,081	915	982	202	162	12,339	10,103	36,781
Sculpin	----	----	2	39	1,230	6,625	5,548	6,467	873	----	--	--	23,784
Sea bass, giant	5,583	----	11,465	1,632	612	663	97	876	1,933	556	16,843	6,260	46,520
Seabass, white	7,245	3,692	1,435	4,455	755	5,151	5,780	9,619	3,620	16,524	10,361	2,535	71,172
Shark	----	----	573	287	1,694	664	150	1,446	507	444	2,405	1,785	9,955
Sheephead, California	352	102	----	----	135	----	----	1,183	68	----	----	----	1,840
Swordfish	----	----	404	----	702	----	660	1,705	----	----	----	----	3,471
Tuna, albacore	--	--	--	--	--	--	522,194	315,215	11,043	----	----	25,831	874,283
Tuna, bluefin	129,601	----	----	----	----	17,890	2,014,423	4,595,833	20,123	199,567	----	----	6,977,437
Tuna, skipjack	802,535	2,429	1,881,441	1,440,923	625,291	2,575,059	2,700,979	1,250,337	396,630	1,810,453	474,859	1,213,986	15,174,925
Tuna, yellowfin	2,007,302	720,863	3,645,083	1,954,161	4,770,790	4,413,294	2,826,388	2,746,761	2,882,901	3,460,008	3,867,517	5,108,833	38,433,898
Whitefish, ocean	----	198	30	----	----	----	----	28	110	----	220	----	586
Yellowtail, California	2,987	1,761	509	1,081	137	820	644	512	467	911	7,393	280	17,502
Miscellaneous	278	----	----	----	----	----	107	----	----	----	----	----	385
Crustacean:													
Crab, rock	----	----	----	----	100	----	----	60	----	----	----	----	160
Total pounds	2,977,303	729,090	5,562,554	3,,15,949	5,417,524	7,088,793	8,104,127	9,211,056	3,321,776	5,488,625	4,417,349	6,389,980	62,124,126
SHIPMENTS:*													
Fish:													
Tuna, albacore	----	----	84,500	----	----	----	----	176,989	681,090	1,543,418	1,789,431	----	4,275,428
Tuna, yellowfin	179,031	94,662	----	----	----	----	----	----	----	600,099	402,804	----	1,276,596
Total pounds	179,031	94,662	84,500	----	----	----	----	176,989	681,090	2,143,517	2,192,235	----	5,552,024
Grand total	**3,310,112**	**896,553**	**5,759,290**	**3,534,519**	**5,615,401**	**7,216,118**	**8,467,340**	**12,186,107**	**4,546,114**	**8,076,396**	**6,943,632**	**6,500,937**	**73,052,519**

*For origin of shipments refer to Table 6. Beginning in 1965 only tuna shipments are recorded.

TABLE 15

Value of Landings and Shipments of Commercial Fish Into California by Area, 1966

Species	Eureka	San Francisco*	Monterey	Santa Barbara	Los Angeles	San Diego	Total
LANDINGS:							
Fish:							
Anchovy	---	68,163	16,640,036	9,039,290	36,532,747	----	62,280,236
	---	$3,045	$176,025	$88,881	$375,974	----	$643,925
Barracuda, California	----	----	----	5,988	287,463	25,665	319,116
	---	--	- -	$1,152	$51,214	$4,169	$56,535
Blacksmith	----	----	----	----	6,920	----	6,920
	----	----	----	----	$166	----	$166
Bonito, Pacific	----	2,396	16,490	494,350	17,573,973	1,061,285	19,148,494
	----	$210	$726	$19,311	$697,887	$43,147	$761,281
Cabezon	----	2,208	1,645	8,735	11	----	12,599
	----	$60	$98	$345	$2	----	$505
Cabrilla, spotted	----	----	----	----	8,895	3,022	11,917
	----	----	----	----	$1,334	$519	$1,853
Carp	----	252,409	----	----	----	----	252,409
	----	$10,097	----	----	----	----	$10,097
Croaker, white	----	12,342	98,045	258	676,003	4,434	791,082
	----	$1,234	$6,792	$16	$35,661	$470	$44,173
Flounder	54,347	218,828	60,097	47,356	----	----	380,628
	$3,304	$15,144	$5,116	$3,812	----	----	$27,376
Flounder, arrowtooth	513	2,990	----	----	----	----	3,503
	$26	$60	----	----	----	----	$86
Flyingfish	----	----	----	----	56,362	----	56,362
	----	----	----	----	$6,745	----	$6,745
Grouper	----	----	----	----	185,794	65,115	250,909
	----	----	----	----	$41,801	$15,256	$57,057
Hake, Pacific	----	31,740	24,934	12,140	----	188	69,002
	----	$635	$504	$243	----	$18	$1,400
Halfmoon	----	----	----	----	9,435	95	9,530
	----	----	----	----	$2,195	$13	$2,208
Halibut, California	115	234,026	92,656	285,596	247,659	151,360	1,011,412
	$30	$59,168	$20,413	$76,952	$67,146	$40,327	$264,036
Halibut, Pacific	671	----	----	----	----	----	671
	$239	----	----	----	----	----	$239
Hardhead	----	257,021	----	----	----	----	257,021
	----	$51,404	----	----	----	----	$51,404
Herring, Pacific	----	30,021	211,952	----	----	----	241,973
	----	$2,179	$21,079	----	----	----	$23,258
Lingcod	391,302	269,307	92,825	44,380	1,966	523	800,303
	$33,434	$24,065	$9,324	$4,071	$303	$58	$71,255
Mackerel, bullet	----	----	----	----	36,195	----	36,195
	----	----	----	----	$905	----	$905
Mackerel, jack	835	283	1,234,731	6,790,386	32,821,174	15,000	40,862,409
	$38	$13	$45,837	$221,589	$1,156,250	$600	$1,424,327
Mackerel, Pacific	----	----	----	545,475	4,033,092	50,937	4,629,504
	----	----	----	$19,443	$166,426	$2,641	$188,510
Opaleye	----	----	----	----	13,671	5,761	19,432
	----	----	----	----	$2,796	$1,287	$4,083
Perch	46,139	15,664	18,114	23,446	45,728	11,290	160,381
	$6,905	$3,828	$2,858	$5,589	$8,592	$2,151	$29,923
Pompano, Pacific	----	22	10,669	12,076	36,885	----	59,652
	----	$11	$5,873	$2,415	$11,769	----	$20,068
Rockfish	1,912,261	1,612,834	3,385,933	2,263,974	551,007	337,583	10,063,592
	$100,948	$105,334	$196,906	$133,667	$78,242	$44,552	$659,649
Sablefish	1,588,892	1,031,522	593,831	1,658	16	20	3,215,939
	$162,158	$42,044	$26,304	$115	$2	$2	$230,625
Salmon	6,936,426	2,238,476	188,518	83,204	61	310	9,446,995
	$3,407,684	$1,278,679	$110,074	$48,798	$30	$220	$4,845,485
Sanddab	155,502	296,266	249,464	6,477	129	12,263	720,101
	$14,552	$23,355	$16,443	$575	$29	$3,069	$58,023
Sardine	----	----	12,964	107,497	742,618	15,280	878,359
	----	----	$2,463	$17,428	$129,618	$2,542	$152,051
Sargo	----	----	----	----	1,120	----	1,120
	----	----	----	----	$192	----	$192
Sculpin	----	----	----	----	26,479	82,020	108,499
	----	----	----	----	$9,239	$22,453	$31,692
Sea bass, giant			128	1,298	290,635	48,906	340,967
	----	----	$26	$204	$51,546	$8,450	$60,226
Seabass, white		503	23,586	219,177	938,505	156,079	1,337,850
	----	$138	$6,172	$65,706	$256,211	$46,934	$375,161
Shark	3,316	109,977	56,014	125,016	243,583	115,884	653,790
	$168	$4,709	$2,242	$13,1 1	$52,502	$13,983	$66,735
Sheephead, California				153	5,816	10,015	15,984
	----	----	----	$10	$467	$902	$1,379
Skate	2,440	72,500	70,959	809	7,306	----	154,014
	----	$949	$1,221	$65	$187	----	$2,422

TABLE 15—Continued

Value of Landings and Shipments of Commercial Fish Into California by Area, 1966

Species	Eureka	San Francisco*	Monterey	Santa Barbara	Los Angeles	San Diego	Total
LANDINGS—Continued							
Fish—Continued							
Smelt	188,320	97,783	16,287	69,618	149,895	554	522,457
	$12,203	$12,491	$1,506	$644	$5,137	$65	$32,046
Smelt, whitebait	149,579	12,680	----	----	----	----	162,259
	$14,852	$1,702	----	----	----	----	$16,554
Sole, Dover	7,578,740	2,542,183	135,380	55,072	258	----	10,311,633
	$532,174	$143,785	$7,299	$3,321	$16	----	$686,595
Sole, English	1,934,490	1,904,279	452,922	544,878	8,299	----	4,844,868
	$171,968	$170,730	$36,600	$40,610	$1,000	----	$420,908
Sole, petrale	1,196,985	1,143,653	299,493	285,999	1,060	----	2,927,190
	$154,766	$156,615	$42,208	$37,059	$187	----	$390,835
Sole, rex	913,426	395,724	203,990	122,000	259	----	1,635,399
	$77,643	$31,127	$13,232	$10,348	$22	----	$132,372
Sole, sand	2,684	149,105	6,475	77,427	----	----	235,691
	$290	$18,022	$772	$9,456	----	----	$28,540
Sole, miscellaneous	70	117	9,743	6,304	979	8,744	25,957
	$6	$9	$977	$681	$127	$2,136	$3,936
Splittail	----	1,890	----	----	----	----	1,890
	----	$378	----	----	----	----	$378
Swordfish	----	----	771	133,238	305,199	29,564	468,772
	----	----	$323	$56,259	$148,653	$14,961	$220,196
Tuna, albacore	1,619,734	1,446,984	2,995,389	1,551,212	6,754,215	3,821,678	18,189,212
	$279,296	$255,684	$527,471	$281,257	$1,296,396	$721,310	$3,361,414
Tuna, bigeye	----	----	----	----	16,666	----	16,666
	----	----	----	----	$3,442	----	$3,442
Tuna, bluefin	----	111,260	----	----	27,731,364	6,977,782	34,820,406
	----	$18,135	----	----	$4,066,329	$1,020,309	$5,104,773
Tuna, skipjack	----	27,860	1,500	990	35,861,804	15,197,107	51,089,261
	----	$4,110	$158	$139	$4,724,881	$2,031,309	$6,760,597
Tuna, yellowfin	----	699,448	----	----	93,459,567	38,435,508	132,594,523
	----	$118,458	----	----	$16,809,014	$6,761,385	$23,688,857
Turbot	2,198	66,600	395	13,942	30	162	83,327
	$112	$3,303	$16	$862	$4	$24	$4,321
Whitefish, ocean	----	----	----	----	1,190	1,519	2,709
	----	----	----	----	$89	$121	$210
Yellowtail, California	----	----	----	90	211,551	33,566	245,207
	----	----	----	$15	$23,437	$3,198	$26,650
Miscellaneous	38,524	41	195	34	208	436	39,438
	$1,926	$2	$10	$2	$47	$69	$2,056
Miscellaneous (animal food)	1,277,305	----	----	1,102,918	----	----	2,380,223
	$22,000	----	----	$21,972	----	----	$43,972
Crustacean:							
Crab, market	12,046,702	320,840	2,911	5,937	----	----	12,376,390
	$1,757,343	$118,472	$1,276	$2,618	----	----	$1,879,709
Crab, rock	----	----	551	106,539	207,536	16,217	330,843
	----	----	$20	$6,676	$25,399	$629	$32,724
Lobster, spiny	----	----	----	123,519	200,169	165,400	489,088
	----	----	----	$100,161	$171,545	$137,624	$409,330
Prawn, spot	----	----	3,366	209	----	----	3,575
	----	----	$2,356	$86	----	----	$2,442
Prawn, ridgeback	----	----	----	30,238	----	----	30,238
	----	----	----	$7,591	----	----	$7,591
Shrimp, bay	----	4,165	----	----	----	----	4,165
	----	$856	----	----	----	----	$856
Shrimp, ocean	1,189,171	520	----	506	----	----	1,190,197
	$124,251	$62	----	$60	----	----	$124,373
Mollusk:							
Abalone	----	13,596	----	3,121,205	1,189,834	638,921	4,963,556
	----	$1,917	----	$598,284	$213,087	$101,915	$915,203
Octopus	709	11,479	4,957	463	----	2	17,610
	$34	$473	$431	$46	----	-	$984
Oyster, eastern	----	12,925	----	----	----	----	12,925
	----	$40,584	----	----	----	----	$40,584
Oyster, giant Pacific	535,908	221,577	1,978	28,039	----	----	787,502
	$123,259	$50,963	$455	$6,449	----	----	$181,126
Squid	----	----	11,207,349	1,305,038	6,513,192	300	19,025,879
	----	----	$341,687	$17,160	$91,736	$24	$450,607
Miscellaneous mollusk	826	30	1,298	----	----	----	2,154
	$147	$1	$324	----	----	----	$472
Total pounds	39,768,130	15,944,237	38,428,541	28,804,154	267,994,523	67,500,495	458,440,080
Total value	$7,001,756	$2,774,240	$1,633,617	$1,925,274	$30,765,979	$11,048,842	$55,149,708

TABLE 15—Continued

Value of Landings and Shipments of Commercial Fish Into California by Area, 1966

Species	Eureka	San Francisco*	Monterey	Santa Barbara	Los Angeles	San Diego	Total
SHIPMENTS:							
Fish:							
Tuna, albacore	----	----	----	----	**51,444,198**	**4,275,428**	**55,719,626**
	----	----	----	----	$12,940,099	$1,004,693	$13,944,792
Tuna, bigeye	----	----	----	----	**2,861,632**	----	**2,861,632**
	----	----	----	----	$553,384	----	$553,384
Tuna, bluefin	----	----	----	----	**3,118,804**	----	**3,118,804**
	----	----	----	----	$699,512	----	$699,512
Tuna, longtail	----	----	----	----	**6,755**	----	**6,755**
	----	----	----	----	$1,121	----	$1,121
Tuna, skipjack	----	----	----	----	**14,136,271**	----	**14,136,271**
	----	----	----	----	$2,524,135	----	$2,524,135
Tuna, yellowfin	----	**342,690**	----	----	**55,630,963**	**1,276,596**	**57,250,249**
	----	$83,073	----	----	$14,082,495	$261,129	$14,426,697
Total pounds	----	**342,690**	----	----	**127,198,623**	**5,552,024**	**133,093,337**
Total value	----	$83,073	----	----	$30,800,746	$1,265,822	$32,149,641
GRAND TOTAL POUNDS	39,768,130	16,286,927	38,428,541	28,804,154	395,193,146	73,052,519	591,533,417
GRAND TOTAL VALUE	$7,001,756	$2,857,313	$1,633,617	$1,925,274	$61,566,725	$12,314,664	$87,299,349

* Includes Sacramento area landings.
For origin of shipments refer to Table 6. Beginning in 1965 only tuna shipments are recorded.

TABLE 16
Value of Landings by Port, Eureka Area, 1966

	Value	Pounds
Eureka		
Salmon	$1,445,212	2,925,324
Market crab	814,047	5,580,346
Albacore	186,418	1,081,106
Dover sole	156,433	2,227,772
Giant Pacific oyster	123,259	535,908
Ocean shrimp	25,144	240,645
Petrale sole	22,899	177,102
English sole	22,715	255,521
Sablefish	22,505	220,513
Rockfish	20,887	417,423
Rex sole	17,973	211,440
All other species	13,250	141,736
Port totals	$2,870,742	14,014,836
Fort Bragg		
Salmon	$1,095,932	2,262,365
Market Crab	106,816	732,232
Dover sole	89,994	1,281,617
Albacore	85,934	498,360
Sablefish	73,578	720,951
Petrale sole	53,302	412,247
English sole	29,889	336,230
Rockfish	25,407	466,219
Lingcod	12,724	148,922
Rex sole	12,551	147,658
Whitebait smelt	5,259	52,965
Miscellaneous (animal food)	5,257	305,231
All other species	6,170	91,772
Port totals	$1,602,813	7,456,769
Crescent City		
Market crab	$687,189	4,710,724
Salmon	551,752	1,101,693
Ocean shrimp	98,715	944,776
English sole	26,192	294,638
Rockfish	8,724	156,144
Albacore	6,944	40,268
Petrale sole	6,405	49,540
Sablefish	5,922	58,025
Lingcod	5,646	66,079
Dover sole	4,873	69,402
All other species	11,734	155,241
Port totals	$1,414,096	7,646,530
Fields Landing		
Dover sole	$280,874	3,999,949
English sole	93,172	1,048,101
Petrale sole	72,160	558,096
Sablefish	60,153	589,403
Market crab	57,501	394,171
Rockfish	45,930	872,475
Rex sole	42,393	498,727
Miscellaneous (animal food)	16,683	968,599
Lingcod	11,910	139,392
Salmon	11,802	23,692
Sanddab	9,803	104,759
Smelt	6,549	97,697
Whitebait smelt	6,215	62,597
All other species	3,200	30,117
Port totals	$718,345	9,387,775

TABLE 16—Continued

Value of Landings by Port, Eureka Area, 1966

	Value	Pounds
Albion		
Salmon	$144,286	284,532
All other species	452	3,098
Port totals	$144,738	287,630
Trinidad		
Market crab	$91,338	626,131
Salmon	52,869	130,399
Port totals	$144,207	756,530
Point Arena		
Salmon	$105,750	208,245
Port totals	$105,750	208,245
All other ports		
All species	$1,065	9,815
Totals	$1,065	9,815
EUREKA AREA TOTALS	**$7,001,756**	**39,768,130**

TABLE 17

Value of Landings and Shipments by Port, San Francisco Area, 1966 *

	Value	Pounds
San Francisco		
Landings:		
Dover sole	$118,812	2,100,640
Petrale sole	118,738	867,062
Yellowfin tuna	118,458	699,448
Salmon	111,803	190,738
English sole	105,255	1,173,991
Rockfish	89,691	1,401,513
Market crab	60,845	164,778
California halibut	38,430	152,004
Sablefish	35,754	877,200
Albacore	34,096	192,956
Bluefin tuna	18,135	111,260
Sanddab	17,732	224,937
Rex sole	17,245	219,241
Sand sole	17,002	140,670
Lingcod	16,005	179,106
Flounder	10,077	145,613
All other species	16,973	301,695
Total Landings	$945,051	9,142,852
Shipments:		
Yellowfin tuna	$83,073	342,690
Total shipments	$83,073	342,690
Port totals	$1,028,124	9,485,542
Bodega Bay		
Landings:		
Salmon	$539,080	959,302
English sole	54,958	612,983
Market crab	29,921	81,032
Petrale sole	27,297	199,331
Dover sole	24,362	430,731
Rex sole	11,849	150,638
Albacore	10,224	57,863
Smelt	9,901	70,023
Rockfish	9,694	123,677
All other species	18,775	300,223
Port totals	$736,061	2,985,803
Point Reyes		
Landings:		
Salmon	$339,737	579,886
Giant Pacific oyster	42,743	185,840
Market crab	18,895	51,170
Petrale sole	10,559	77,105
English sole	10,413	116,145
Rockfish	4,872	75,151
All other species	13,787	187,979
Port totals	$441,006	1,273,276
Sausalito		
Landings:		
Salmon	$183,229	321,562
Albacore	115,309	652,565
All other species	6,330	70,226
Port totals	$304,868	1,044,353
Oakland		
Landings:		
Albacore	$95,966	543,096
Salmon	47,708	89,382
All other species	1,344	10,072
Port totals	$145,018	642,550

TABLE 17—Continued

Value of Landings and Shipments by Port, San Francisco Area, 1966 *

	Value	Pounds
Princeton		
Landings:		
Salmon	$47,791	81,689
California halibut	18,287	72,332
Market crab	5,348	14,482
All other species	3,647	47,926
Port totals	$75,073	216,429
Clear Lake		
Landings:		
Hardhead	$49,856	249,281
Carp	7,485	187,116
Port totals	$57,341	436,397
Tomales Bay		
Landings:		
Eastern oyster	$40,584	12,925
Giant Pacific oyster	8,220	35,737
All other species	4,444	49,646
Port totals	$53,248	98,308
Berkeley		
Landings:		
Salmon	$7,755	13,229
All other species	620	2,459
Port totals	$8,375	15,688
All other ports		
Landings:		
All species	$8,199	88,581
Totals	$8,199	88,581
SAN FRANCISCO AREA TOTALS	**$2,857,313**	**16,286,927**

* Includes Sacramento area landings.

TABLE 18
Value of Landings by Port, Monterey Area, 1966

	Value	Pounds
Monterey		
Squid	$329,026	10,792,049
Albacore	230,407	1,308,431
Rockfish	144,780	2,502,175
Anchovy	41,880	3,958,990
English sole	23,958	296,476
Petrale sole	23,819	169,013
Sablefish	21,744	490,886
Salmon	9,846	16,635
Rex sole	8,617	132,845
California halibut	8,540	38,764
Sanddab	6,360	96,496
Lingcod	5,172	51,488
All other species	21,269	305,886
Port totals	$875,418	20,160,134
Moss Landing		
Albacore	$290,473	1,649,527
Anchovy	133,895	12,657,370
Salmon	80,757	138,983
Rockfish	51,365	872,921
Jack mackerel	43,372	1,168,346
Pacific herring	18,530	186,320
Petrale sole	18,389	130,480
Squid	12,652	415,000
English sole	12,642	156,446
Sanddab	9,834	149,193
Dover sole	5,764	106,905
All other species	27,024	338,605
Port totals	$704,697	17,970,096
Santa Cruz		
Salmon	$19,471	32,900
California halibut	10,145	46,047
Albacore	6,591	37,431
All other species	17,295	181,933
Port totals	$53,502	298,311
MONTEREY AREA TOTALS	**$1,633,617**	**38,428,541**

TABLE 19

Value of Landings by Port, Santa Barbara Area, 1966

	Value	Pounds
Morro Bay		
Abalone	$275,465	1,452,553
Albacore	275,230	1,517,971
Jack mackerel	110,511	3,386,502
Rockfish	86,627	1,468,770
Salmon	19,114	32,812
Petrale sole	15,489	119,533
White seabass	14,319	47,765
California halibut	13,971	51,851
Sardine	12,622	77,853
Miscellaneous (animal food)	7,457	374,314
Giant Pacific oyster	6,449	28,039
Perch	5,363	22,446
All other species	22,856	282,974
Port totals	$865,473	8,863,383
Santa Barbara		
Abalone	$273,980	1,415,786
Spiny lobster	77,460	95,524
Swordfish	47,680	112,921
Rockfish	35,475	603,219
English sole	29,316	393,333
California halibut	24,109	89,476
White seabass	17,044	56,853
Petrale sole	13,493	104,133
Miscellaneous (animal food)	11,629	583,743
Ridgeback prawn	7,591	30,238
Shark	6,493	61,518
Rock crab	6,395	102,048
All other species	9,436	102,312
Port totals	$560,101	3,751,104
Port Hueneme		
Jack mackerel	$111,078	3,403,878
Anchovy	88,881	9,039,290
Pacific mackerel	18,481	518,480
Spiny lobster	18,366	22,649
Abalone	18,040	91,475
Squid	17,160	1,305,038
California halibut	17,110	63,503
Pacific bonito	16,724	428,144
Swordfish	8,480	20,082
Sardine	4,806	29,644
All other species	6,763	116,835
Port totals	$325,889	15,039,018
Avila		
Salmon	$29,684	50,392
White seabass	29,557	98,596
Abalone	22,150	116,850
California halibut	17,686	65,641
Rockfish	10,898	182,313
Petrale sole	7,981	61,591
Sand sole	7,358	60,249
English sole	5,955	79,903
Albacore	5,735	31,628
All other species	16,478	315,093
Port totals	$153,482	1,062,256
All other ports		
Abalone	$8,649	44,541
All other species	11,680	43,852
Totals	$20,329	88,393
SANTA BARBARA AREA TOTALS	$1,925,274	28,804,154

TABLE 20

Value of Landings and Shipments by Port, Los Angeles Area, 1966

	Value	Pounds
Terminal Island		
Landings:		
Yellowfin tuna	$16,756,454	93,167,327
Skipjack tuna	4,724,881	35,861,804
Bluefin tuna	3,997,477	27,261,810
Albacore	1,276,665	6,651,419
Jack mackerel	958,165	27,198,349
Pacific bonito	461,299	11,616,291
Anchovy	354,557	34,451,670
Pacific mackerel	119,001	2,883,808
Squid	63,071	4,477,972
All other species	4,846	24,712
Total landings	$28,716,416	243,595,162
Shipments:		
Yellowfin tuna	$14,082,495	55,630,963
Albacore	12,937,584	51,434,198
Skipjack tuna	2,524,135	14,136,271
Bluefin tuna	699,512	3,118,804
Bigeye tuna	553,384	2,861,632
Longtail tuna	1,121	6,755
Total shipments	$30,798,231	127,188,623
Port totals	$59,514,647	370,783,785
San Pedro		
Landings:		
White seabass	$231,840	849,235
Abalone	186,303	1,044,096
Pacific bonito	162,300	4,086,986
Sardine	128,081	733,809
Swordfish	99,504	204,290
Spiny lobster	92,990	108,506
Jack mackerel	79,467	2,255,750
Rockfish	73,842	520,916
Bluefin tuna	68,843	469,495
California halibut	57,210	211,012
Yellowfin tuna	52,560	292,240
Giant sea bass	51,236	288,888
California barracuda	49,554	278,147
Pacific mackerel	42,001	1,017,846
Grouper	41,801	185,794
White croaker	29,036	539,014
Squid	28,665	2,035,220
California yellowtail	22,919	206,877
Anchovy	15,351	1,491,660
Pacific pompano	11,183	35,047
Rock crab	10,678	87,249
Albacore	9,480	49,392
Shark	8,233	61,488
Sculpin	7,627	21,861
Perch	6,518	34,339
All other species	17,638	262,908
Port totals	$1,584,860	17,372,065
Wilmington		
Landings:		
Jack mackerel	$118,554	3,365,246
Pacific bonito	73,532	1,851,667
White croaker	6,033	127,620
Pacific mackerel	5,278	127,902
All other species	4,791	426,470
Port totals	$208,188	5,898,905

TABLE 20—Continued

Value of Landings and Shipments by Port, Los Angeles Area, 1966

	Value	Pounds
Newport Beach		
Landings:		
Swordfish	$43,540	89,392
Abalone	26,521	144,081
Shark	22,703	170,460
Spiny lobster	18,664	21,778
White seabass	15,543	56,933
California halibut	9,178	33,852
Albacore	9,075	47,280
All other species	5,063	131,562
Port totals	$150,287	695,338
Long Beach		
Landings:		
Spiny lobster	$28,105	32,795
All other species	8,333	125,039
Port totals	$36,438	157,834
Redondo Beach		
Landings:		
Rock crab	$14,539	118,796
Spiny lobster	7,527	8,783
All other species	2,078	21,468
Port totals	$24,144	149,047
Santa Monica		
Landings:		
Spiny lobster	$9,227	10,767
White seabass	7,031	25,757
All other species	7,438	33,163
Port totals	$23,696	69,687
San Clemente		
Landings:		
Spiny lobster	$7,890	9,206
All other species	1,200	5,356
Port totals	$9,090	14,562
Sunset Beach		
Landings:		
Spiny lobster	$7,105	8,291
All other species	1,037	6,661
Port totals	$8,142	14,952
All other ports		
Landings:		
All species	$4,718	26,971
Total landings	$4,718	26,971
Shipments:		
Albacore	$2,515	10,000
Total shipments	$2,515	10,000
Totals	$7,233	36,971
LOS ANGELES AREA TOTALS	$61,566,725	395,193,146

TABLE 21

Value of Landings and Shipments by Port, San Diego Area, 1966

	Value	Pounds
San Diego		
Landings:		
Yellowfin tuna	$6,761,385	38,435,508
Skipjack tuna	2,031,309	15,197,107
Bluefin tuna	1,020,309	6,977,782
Albacore	721,310	3,821,678
Spiny lobster	119,381	143,476
Abalone	101,891	638,771
White seabass	44,907	149,338
Rockfish	43,196	327,362
Pacific bonito	42,977	1,057,098
California halibut	39,332	147,626
Sculpin	22,422	81,905
Grouper	15,256	65,115
Swordfish	14,961	29,564
Shark	13,206	109,636
Giant sea bass	8,450	48,906
All other species	24,469	212,480
Total landings	$11,024,761	67,443,352
Shipments:		
Albacore	$1,004,693	4,275,428
Yellowfin tuna	261,129	1,276,596
Total shipments	$1,265,822	5,552,024
Port totals	$12,290,583	72,995,376
Cardiff		
Landings:		
Spiny lobster	$12,139	14,589
Port totals	$12,139	14,589
All other ports		
Landings:		
Spiny lobster	$6,104	7,335
All other species	5,838	35,219
Totals	$11,942	42,554
SAN DIEGO AREA TOTALS	**$12,314,664**	**73,052,519**

TABLE 22

Statewide Commercial Partyboat Catch by Species
(Not including anchored barges)
1957–1966 *

Species	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966
Barracuda, California	577,184	782,723	1,195,585	755,408	391,884	335,507	483,699	303,070	443,304	892,697
Bass, kelp and sand	609,971	653,671	428,426	478,656	613,604	789,149	1,219,344	1,103,394	1,230,313	1,278,939
Bonito, Pacific	258,555	422,568	776,386	1,199,919	849,426	798,725	775,719	1,298,804	806,322	644,415
Cabezon	14,479	9,909	5,329	2,516	2,639	4,538	9,726	6,491	7,575	10,293
Halibut, California	10,795	16,192	25,365	48,310	108,011	118,966	125,669	141,465	118,213	88,726
Lingcod	38,012	39,801	31,206	28,232	23,466	25,399	27,513	25,263	33,260	44,676
Mackerel, jack	6,878	27,867	11,820	8,537	28,891	9,029	9,342	6,577	25,619	19,027
Mackerel, Pacific	151,969	136,607	88,952	79,370	113,988	116,738	146,560	101,219	151,896	205,090
Rockfish	1,395,151	1,561,132	1,177,979	1,015,673	898,641	956,138	962,659	966,801	1,347,430	1,688,718
Salmon	44,701	52,676	55,945	37,941	42,965	87,612	72,457	92,021	51,677	70,151
Sculpin	13,473	13,743	11,477	15,111	26,672	33,314	53,896	73,844	71,888	69,851
Seabass, white	19,030	34,039	10,593	15,697	11,082	14,564	19,800	14,901	9,775	3,972
Sheephead, California	15,195	18,120	17,146	11,541	15,210	13,188	18,413	26,822	41,651	52,967
Tuna, albacore	41,540	6,482	39	76,075	184,891	229,314	158,372	112,358	99,771	74,680
Tuna, bluefin	6,428	884	1,330	97	2,268	2,153	737	693	92	1,998
Whitefish, ocean	4,389	6,143	5,608	5,850	6,647	6,157	6,231	6,949	13,810	15,587
Yellowtail, California	242,986	123,384	457,350	251,969	42,367	21,826	45,705	39,104	18,367	80,163
All others	50,148	44,939	28,939	56,132	87,981	92,776	142,630	114,400	163,595	166,470
Total number of fish	**3,499,585**	**3,950,880**	**4,328,575**	**4,090,034**	**3,453,633**	**3,655,993**	**4,278,502**	**4,434,176**	**4,634,558**	**5,408,420**
Number of angler days†	536,175	515,152	557,151	516,255	495,805					
Number of anglers				637,498	593,916	595,866	643,155	695,445	688,103	857,000

* See Fish Bulletin No. 121 for historical records 1936–1961.
† Not available after 1961.

TABLE 23

Recorded Catch of Live Bait for Saltwater Sportfishing 1961–1966

Species	Thousands of pounds*					
	1961	1962	1963	1964	1965	1966
Anchovy	11,825	12,333	8,884	10,382	12,296	13,382
Herring, Pacific	----	----	46	18	----	----
Mackerel, jack	----	----	15	----	----	25
Sardine, adult	136	20	38	283	66	54
Sardine, juvenile	3	17	3	1	2	----
Squid	----	----	5	----	----	2
Miscellaneous†	15	67	82	26	82	82
Total pounds	11,979	12,437	9,073	10,710	12,446	13,545
Number of vessels‡	16	22	23	22	24	18

* Weights are estimated from voluntary records. They should be regarded as minimal because some fishermen do not supply catch information.

† Consists primarily of queenfish and white croaker.

‡ The number of live bait fishing vessels for which landings were reported. These numbers differ slightly from those in previous catch bulletins, since the earlier landing records, as submitted, sometimes included the catch of more than one boat.

APPENDIX A

TABLE I

California Commercial Troll Salmon Landings by Port-Area, Month and Species, in Pounds * and Numbers—1966 †

	April		May		June		July		August		September		Season	
	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers
Crescent City														
King	548	44	19,285	1,105	289,676	35,835	49,835	8,990	4,464	235	6,295	506	360,896	46,715
Silver			474	74	351,936	55,082	351,075	42,394	24,185	3,112	12,966	1,523	740,636	102,185
Eureka														
King	50,566	4,466	229,547	28,888	820,466	90,272	297,997	36,928	85,114	7,852	61,222	6,414	1,542,946	174,814
Silver	85	15	25,035	1,833	687,848	106,222	737,645	88,861	65,942	6,724	19,591	1,826	1,536,144	208,481
Fort Bragg														
King	54,131	5,807	26,905	2,762	391,142	31,656	962,714	78,418	478,044	38,852	118,690	11,345	2,030,816	168,840
Silver	79	14	1,425	317	143,896	19,052	520,016	57,342	61,241	6,306	7,680	832	724,447	83,859
San Francisco														
King	145,877	12,802	349,444	32,339	143,184	12,697	555,785	43,163	408,740	26,276	205,031	13,692	1,798,354	143,029
Silver	503	113	9,524	1,921	22,024	3,093	389,070	41,611	17,196	1,646	1,705	154	440,122	48,238
Monterey														
King	50,723	5,042	85,506	6,965	60,730	4,537	27,387	2,310	17,419	1,270	4,157	333	246,015	20,177
Silver	91	20	593	108	7,349	1,037	16,044	1,699	2,001	165	----	----	26,078	3,029
Statewide														
King	280,637	29,205	710,955	72,789	1,705,198	174,997	1,892,818	169,809	993,781	74,485	395,398	32,290	5,979,027	553,575
Silver	756	162	37,051	6,940	1,202,963	184,486	2,014,850	231,907	170,865	17,953	41,942	4,335	3,167,127	445,792

* Dressed head on.
† Not included are 541 pounds (98 fish) of pink salmon.

APPENDIX A

TABLE II

California Ocean Recreational Salmon Landings and Success * by Fishery, Port, Month and Species, in Numbers of Fish—1966

	February			March			April			May			June			July		
	King	Silver	Fish /Day	King	Silver	Fish /Day	King	Silver	Fish /Day	King	Silver	Fish /Day	King	Silver	Fish /Day	King	Silver	Fish /Day
Crescent City																		
Partyboat	0	0	--	0	0	--	0	0	--	0	0	--	0	0	--	0	0	--
Skiff	0	0	--	0	0	--	0	0	--	0	0	--	30	88	0.3	145	1,410	0.8
Eureka																		
Partyboat	0	0	--	0	0	--	1	3	[b]	8	26	[b]	156	522	0.7	208	2,328	1.2
Skiff	0	0	--	0	0	--	0	0	--	0	0	--	262	880	0.4	1,662	18,560	1.1
Fort Bragg																		
Partyboat	0	0	--	0	0	--	2	4	[b]	17	13	[b]	228	171	0.6	744	635	0.5
Skiff	0	0	--	0	0	--	0	0	--	0	0	--	60	45	0.2	1,266	2,379	0.6
San Francisco																		
Partyboat	3,113	7	1.0	15,807	37	1.6	14,136	88	1.5	1,520	1,064	0.6	2,051	1,102	0.8	6,626	726	0.8
Skiff	179	0	0.6	2,636	6	1.8	1,241	13	1.9	17	28	0.6	30	15	0.6	60	7	0.6
Monterey																		
Partyboat	29	0	[c]	31	0	[c]	41	0	[c]	58	41	[c]	96	52	[c]	306	33	[c]
Skiff	65	0	[c]	100	0	[c]	138	0	[c]	193	138	[c]	319	174	[c]	1,021	110	[c]
Statewide																		
Partyboat	3,133	7	1.0	15,838	37	1.6	14,180	95	1.5	1,603	1,144	0.6	2,531	1,847	0.8	7,884	3,722	0.8
Skiff	244	0	0.6	2,736	6	1.8	1,379	13	1.9	210	166	0.6	701	1,202	0.4	4,154	22,466	1.0

* Salmon per angler-day, species combined. [b] Data unavailable. [c] Data not comparable to that of other ports or months.

APPENDIX A

TABLE II—Continued

California Ocean Recreational Salmon Landings and Success* by Fishery, Port, Month and Species, in Numbers of Fish—1966

	August			September			October			November			Season		
	King	Silver	Fish /Day	King	Silver	Fish /Day	King	Silver	Fish /Day	King	Silver	Fish /Day	King	Silver	Fish /Day
Crescent City															
Partyboat	0	0	--	0	0	--	0	0	--	0	0	--	0	0	--
Skiff	20	74	0.2	15	30	[b]	0	0	--	0	0	--	210	1,602	0.6
Eureka															
Partyboat	105	290	0.3	31	88	0.2	0	15	[b]	0	0	--	509	3,272	0.8
Skiff	285	168	0.2	115	266	0.2	0	0		0	0		2,304	20,115	0.8
Fort Bragg															
Partyboat	480	38	0.2	129	10	0.3	0	54	[b]	0	3	[b]	1,600	928	0.4
Skiff	306	219	0.1	244	87	0.1	0	0	--	0	0	--	1,876	2,730	0.4
San Francisco															
Partyboat	5,265	91	0.5	5,231	22	1.0	1,147	0	0.8	3,339	0	1.2	59,953	3,137	1.1
Skiff	45	0	0.5	34	0	[b]	112	0	[b]	55	--	[b]	4,409	69	1.6
Monterey															
Partyboat	44	0	[c]	24	0	[c]	6	0	[c]	0	0	--	626	126	[c]
Skiff	148	0	[c]	80	0	[c]	25	0	[c]	0	0	--	2,089	422	[c]
Statewide															
Partyboat	1,512	112	0.5	5,415	120	1.0	1,153	69	0.8	3,339	3	1.2	62,688	7,463	1.0
Skiff	784	702	0.1	488	383	0.1	137	0	[b]	55	0	[b]	10,888	24,938	0.8

* Salmon per angler-day, species combined. [b] Data unavailable. [c] Data not comparable to that of other ports or months.

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CALIFORNIA-BASED FISHERIES OFF THE WEST COAST OF MEXICO FOR TEMPERATE TUNAS, MARKET FISH, AND SPORT FISH[1]

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Marine Resources Operations

INTRODUCTION

On 1 January 1968, Mexico implements the provisions of its law establishing an exclusive fishery zone 12 nautical miles in breadth. A transitory provision of this law states that:

> "The Federal Executive shall establish the conditions and terms under which nationals of countries that have traditionally exploited the living resources of the sea within the zone of three nautical miles beyond the territorial sea may be authorized to continue their activities, for a period that shall not exceed five years counted from January 1, 1968. Nationals of such countries may continue the said activities without any special conditions during the year 1967."

During May 1967, representatives of the United States and Mexico met in Washington, D. C. to discuss in an informal and exploratory manner the situation brought about by this law. No conclusions were reached at the Washington meeting, but the Mexican delegation indicated their government would look favorably on a continuation of the fishery under permit *(via la pesca)* in the Pacific Coast territorial waters of Mexico, and would allow fishing at the "traditional" rate in the adjacent exclusive fishery zone, at least for the 5-year period.

Mexico's action in adopting a 12-mile zone is of especial interest to Californians because of its potential impact on three groups (tuna fishermen, market fishermen, and sport fishermen) whose representatives have fished under permit for many years in Mexico's territorial waters, particularly off Baja California.

The Mexican delegation expressed an interest in obtaining detailed information on U. S. fishing activities south of the boundary, with special emphasis on the quantities by species taken less than 9, from 9 to 12, and more than 12 nautical miles from the Mexican coast. This paper, pursuant to the Mexican request, records the information about the California-based albacore and bluefin tuna fisheries, market fisheries, and recreational fisheries off the west coast of Mexico. We are not including data for the tropical tunas because the Inter-American Tropical Tuna Commission has the most detailed records on these species.

The basic documents for this compilation are the fish receipts made out at the time commercial fishermen unload at a California port, and

[1] This paper was originally prepared August 1967 in response to a request from the Delegation of Mexico during conversations on fishery matters with the United States, Washington, D.C., May 1967, and was issued for limited distribution as MRO Reference No. 67-22 in substantially its present form. A section has been added which summarizes the final agreement reached in September 1967.

the catch records completed by the operators of the "partyboats": vessels that carry sportsfishermen for hire. The catch locality reporting system is not ideal for the problem at hand, because the smallest statistical reporting unit is 10 minutes latitude by 10 minutes longitude and a given unit may fall partly within and partly outside either a 9- or a 12-mile band along the coast. Nevertheless, these records coupled with fishermen interviews, detailed log books maintained particularly by tuna fishermen, and the staff's knowledge of fishing grounds made reasonably accurate allocations possible.

We have used the period 1961–1965 as a base except for the commercial albacore fishery for which data were available for 1951–1963.

In summary, (1) the quantity of albacore caught within 12 miles of Mexico each year is relatively negligible (an average of about 110 tons/year), (2) the tonnage of bluefin taken is variable but significant, worth some $200,000 per year to the fishermen, (3) the amount of market fish approaches 2 million pounds annually worth nearly $350,000 to the fishermen, and (4) the amount of sportfishing is extremely important but difficult to measure in terms of economic benefit to the State (17,500 partyboat anglers in 1965 paid over $250,000 in fees to the boat operators alone). Most of these fisheries are prosecuted within a few miles of shore, and relatively little activity took place in the 9- to 12-mile zone during 1961–1965.

The total value of the commercial landings to California's economy is about 3.2 times the price paid the fishermen; therefore, catches of bluefin and various market species made within 12 miles of the Mexican coast annually contribute about $1.75 million to our economy. These fisheries are thus of considerable importance to the State. They also comprise a sizeable source of revenue to the Mexican government and constitute a resource not harvested to any significant degree by Mexican nationals at the present time.

All these fisheries have been prosecuted for decades by California-based fishermen. California's commercial records go back over 50 years, but U. S. boats were operating in Mexican waters long before the California statistical system was inaugurated in 1916. In fact Collins (1892), in his report on a survey made in 1888, remarks that the San Diego fishing grounds for bonito and barracuda extended "to a long distance southward, off Mexico." Coleman (1923) states "... the year 1907 marks the period when this fishing (off Baja California) became a general practice." By 1920, boats carrying ice operated as far south as Cedros Island and at times as far as Magdalena Bay, seeking then as now halibut, barracuda, white seabass, rockfish, and tuna. The sport fishery is not as old, but official state records extend back to 1936, about the time that partyboats began fishing at the Coronado Islands.

The sections which follow give detailed accounts of the fisheries in question, and summarize the fee system currently imposed by Mexico on U. S. fishermen who wish to fish in the territorial waters of Mexico. Unless otherwise noted, the weight unit used is the short ton (2,000 pounds).

The data came from records maintained by the Biostatistical Unit of the California Department of Fish and Game. These were augmented by various staff members with personal knowledge of the fisheries, especially Robert R. Bell (bluefin tuna), William L. Craig (albacore), John E. Fitch (market fishery), and Parke H. Young (sportfish).

THE COMMERCIAL ALBACORE FISHERY

Californians have fished albacore off Baja California for many years. Clemens and Craig (1965) state that fishing boat captains knew as early as 1912 that albacore were available there in commercial quantities. Statistical records for catches off Mexico date back to 1918, but catches were negligible until 1942 (Table 1). In 1952, the peak year of the fishery, over 26 million pounds were taken. Catches have since declined, with unfavorable oceanic conditions for albacore resulting in few or no California landings from this area in 1958 and 1959. The catch since 1959 has fluctuated between 3 and 8½ million pounds.

The commercial albacore fishery off Baja California has extended as far south as Rosa Bank and westward over 600 miles offshore (Figure 1). Most albacore are caught over 12 miles from shore; however, during years when ocean conditions are favorable, some fish are taken in the 9–12 mile zone and a few may be taken within 9 miles of shore. For example, catches have been made on Ranger Bank, a portion of which is located in the 9–12 mile zone, and within 8 to 10 miles of Guadalupe Island.

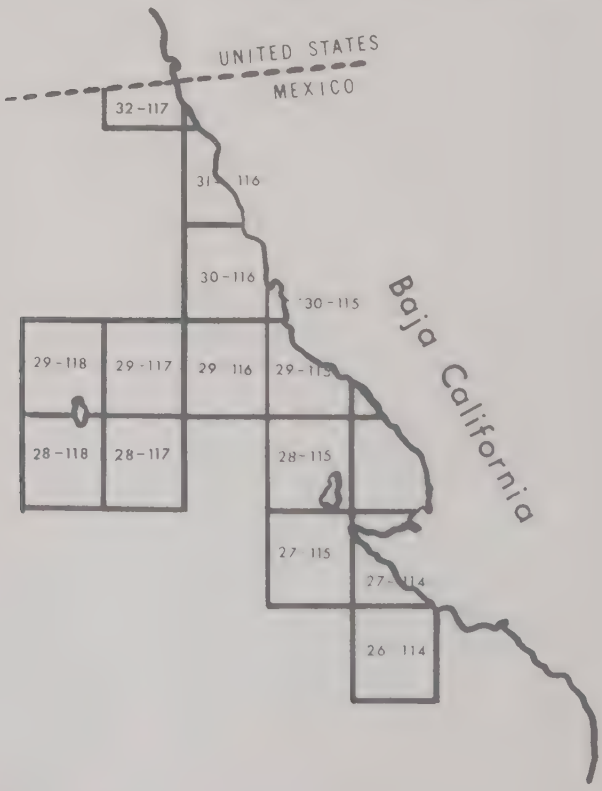
In 1951, the California Department of Fish and Game initiated a system whereby albacore fishermen were asked to keep a special log of their fishing activities. Concerning the catch off Baja California, these records show an annual average of 223,000 pounds of albacore was taken within 12 miles of shore during the period 1951–1963 (Figure 2, Table 2). We feel the bulk of this catch was made in the 9–12 mile zone, although the data are not sufficiently sophisticated to substantiate this conclusion.

FIGURE 1. Albacore fishing areas off Baja California.

TABLE 1

ALBACORE CATCHES OFF BAJA CALIFORNIA LANDED IN CALIFORNIA PORTS 1918–1965

Year	Pounds	Year	Pounds	Year	Pounds
1918	1,527	1934	----	1950	23,575,512
1919	77,874	1935	61,279	1951	17,621,586
1920	----	1936	----	1952	26,697,061
1921	2,199	1937	----	1953	20,490,810
1922	----	1938	29,919	1954	11,818,195
1923	26,634	1939	4,187	1955	19,690,269
1924	415,016	1940	880	1956	21,064,574
1925	521,981	1941	----	1957	20,911,816
1926	60	1942	2,623,216	1958	724,753
1927	123,995	1943	9,498,716	1959	----
1928	----	1944	9,774,659	1960	2,986,543
1929	45	1945	12,214,180	1961	8,319,514
1930	----	1946	8,958,818	1962	4,576,009
1931	----	1947	5,762,119	1963	6,930,638
1932	----	1948	25,901,589	1964	8,682,744
1933	----	1949	23,541,172	1965	3,136,516



Each statistical area represents one degree of latitude and longitude.

FIGURE 2. Statistical areas at least partly within 12 miles of Baja California shores in which albacore were caught during 1951–1963.

TABLE 2

AVERAGE ALBACORE CATCH IN POUNDS TAKEN OFF BAJA CALIFORNIA, 1951–1963 FROM ONE-DEGREE SQUARES LYING AT LEAST PARTLY WITHIN TWELVE MILES OF SHORE

One-degree square	1951–1963 average albacore catch*	Estimated percent caught within 12 miles of coast	1951–1963 estimated average catch within 12 miles of Mexican coast
26-114	105,131 (2)	5	5,256
27-114	12,253 (2)	5	613
-115	133,297 (3)	5	6,665
28-115	568,739 (5)	10	56,874
-117	134,415 (5)	0	----
-118	532,813 (9)	5	26,641
29-115	244,509 (5)	5	12,225
-116	703,834 (10)	0	----
-117	515,762 (11)	0	----
-118	503,762 (10)	5	25,188
30-115	2,451 (1)	100	2,451
-116	1,003,966 (10)	5	50,198
31-116	339,780 (10)	5	16,989
32-117	797,116 (12)	2.5	19,928
Total	----	---	223,028

* Numbers in parentheses represent the number of years of the 13 during which albacore were caught in that particular one-degree square.

Logbook data also show that during the period 1959–1963, the fleet spent an average of 36 boat-days fishing within 12 miles of Baja California, and that probably most of this effort was expended in the 9–12 mile zone (Table 3).

The California fleet landings from off Baja California (Table 1) for 1951–1963 averaged 13,357,771 pounds annually. The average catch inside 12 miles (Table 2) was 223,028 pounds during this period and was negligible (1.67 percent) when compared with the total California landings.

TABLE 3

DAYS FISHED FOR ALBACORE IN ONE-DEGREE SQUARES WITHIN TWELVE MILES OF BAJA CALIFORNIA SHORES 1959–1963

One-degree square	Year					Average days fished	Estimated average days fished within 12 miles
	1959	1960	1961	1962	1963		
28-118	--	7	7	12	--	5	1
29-116	--	--	--	92	2	19	--
29-117	2	--	17	223	--	49	--
29-118	--	9	154	194	155	102	5
30-116	2	--	34	555	123	143	7
31-116	--	--	12	51	413	95	5
32-117	5	58	1,463	1,567	444	707	18
Total	9	74	1,687	2,694	1,137	1,120	36

THE COMMERCIAL BLUEFIN FISHERY

United States vessels began fishing for bluefin tuna in 1914, but it was not until 1918 that significant commercial catches were made. In 1930, United States vessels began fishing off the west coast of Baja California and they have continued to do so since then.

Bluefin enter the North American fishing grounds between Cape San Lucas and Point Conception where they are fished during the summer months. The major concentrations are found 30 to 40 miles from shore near banks and shallows. Important fishing areas are Morgan, Lusitania, and Uncle Sam Banks off Baja California (Figure 3) and about the Channel Islands off southern California.

We have detailed catch and effort data for the period 1961–1965, which were obtained in cooperation with the Inter-American Tropical Tuna Commission. During this time, California-based vessels took 93 percent of the United States catch off southern California, both within and more than 12 miles offshore, or more than 12 miles from the Mexican coast, 5 percent within 9 miles of the Mexican coast, and 2 percent within the Mexican 9–12 mile zone. The average annual catch by United States vessels was over 600 tons within 9 miles of the Mexican coast and over 200 tons from 9 to 12 miles offshore (Table 4). The value of the catch to the fishermen was about $200,000 per year based on an average price of $250 per ton from 1961 through 1965. The annual value to the state's economy was on the order of $640,000 using the 3.2:1 factor suggested in the "California Fish and Wildlife Plan" (California Department of Fish and Game, 1965).

A portion of Ranger Bank lies within 12 miles of San Benito Island, and this area produces a large portion of the catch taken within the forthcoming Mexican exclusive fishing zone. Some bluefin are caught close to the Coronado Islands, San Martin Island, Guadalupe Island, and Cedros Island, well within both 9 miles and 12 miles of Mexico (Figure 4).

TABLE 4

U.S. EASTERN PACIFIC BLUEFIN TUNA CATCH
1961–1965

Year	Tons						
	0 to 9 miles of Mexican coast	9 to 12 miles of Mexican coast	Within 12 miles of Mexican coast	South of boundary less 12 mile catch	South of boundary total	North of boundary (California)	Total catch
1961	407	57	464	3,096	3,560	6,881	10,441
1962	819	13	832	6,248	7,080	8,520	15,600
1963	1,060	24	1,084	10,527	11,611	3,565	15,176
1964	173	681	854	8,404	9,258	2,328	11,586
1965	626	304	930	5,897	6,827	1,137	7,964
5 Year Average							
Tons	617	216	833	6,834	7,667	4,486	12,153
Percent	5.1	1.8	6.9	56.2	63.1	36.9	100.0

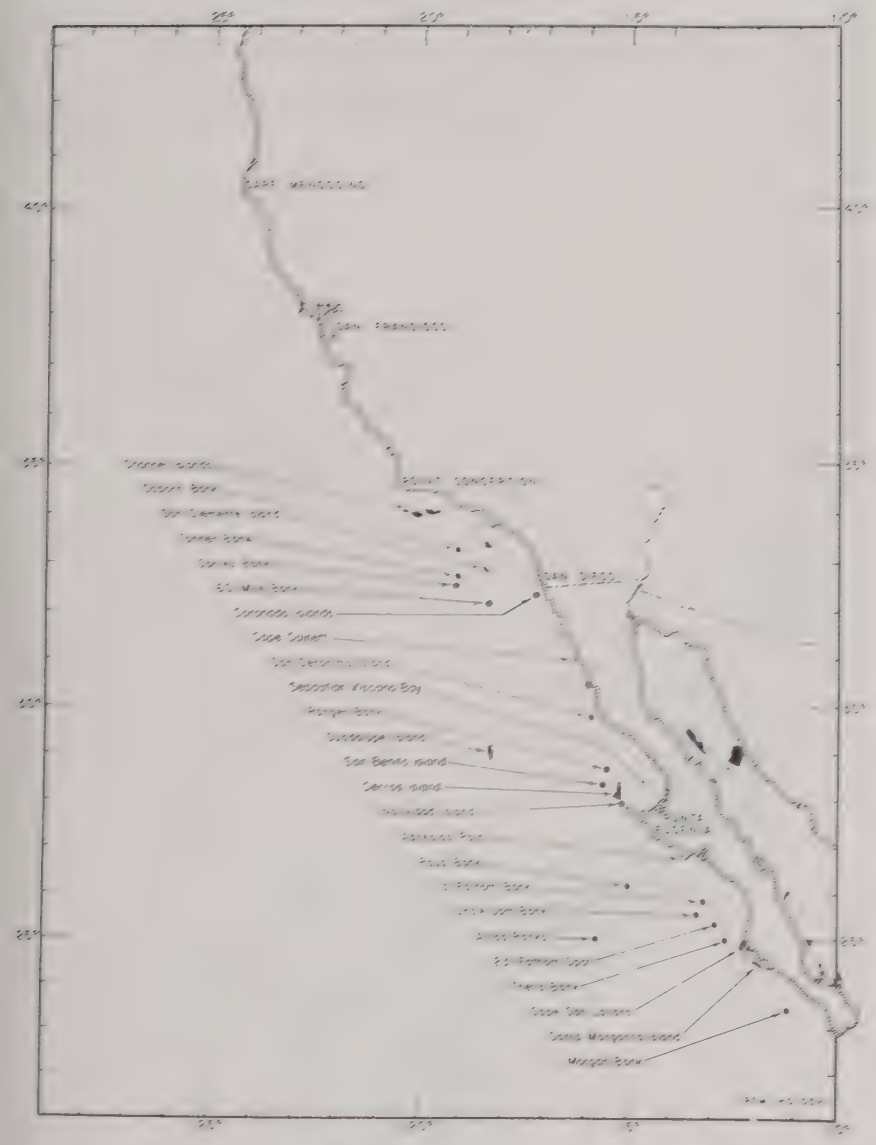


FIGURE 3. Major bluefin tuna fishing grounds in the eastern Pacific Ocean.

The number of U. S. vessels operating within 12 miles of Mexico each year increased from 9 in 1961 to 28 in 1965, averaging 15 per year (Tables 5 & 6). These vessels spent 183 boat-days per year fishing bluefin close to shore. Most of this effort was within 9 miles of the coast; nevertheless, 47 days were expended within the 9-12 mile zone (Table 7).

In some years previous to 1961, large segments of the bluefin tuna population entered Mexican waters very close to shore. When this took place, United States vessels realized over $1 million annually from fish caught within 12 miles of the Baja California coast. This can happen again. For this reason, the figures based on only the 1961–65 catch are conservative.

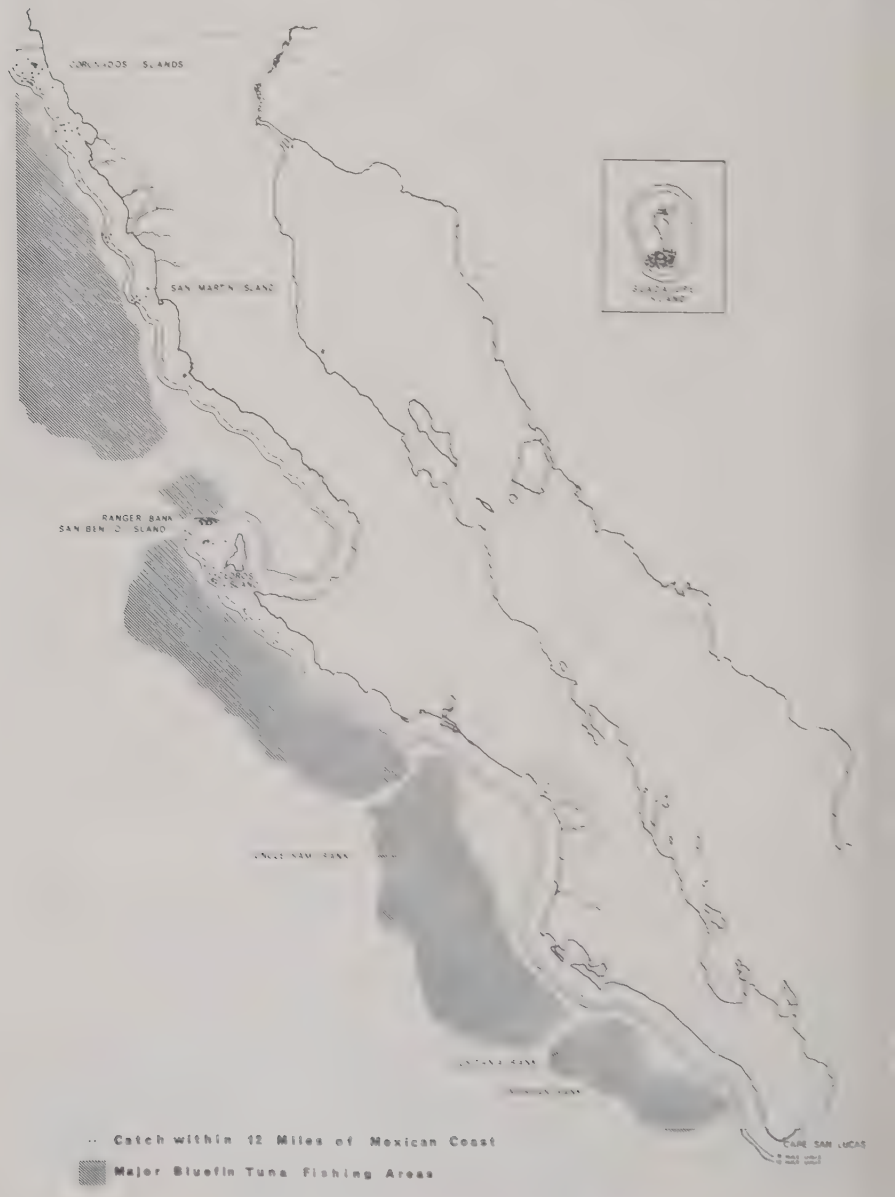


FIGURE 4. Bluefin tuna fishery off Baja California.

TABLE 5

LENGTHS OF U.S. FLAG VESSELS FISHING BLUEFIN TUNA WITHIN 12 MILES OF THE MEXICAN COAST

1961–1965

Year	Feet							Total
	60–69	70–79	80–89	90–99	100–109	110–119	120–129	
1961	--	5	1	2	1	--	--	9
1962	--	3	1	1	--	1	--	6
1963	1	6	4	1	--	2	--	14
1964	--	2	2	2	2	6	2	16
1965	--	5	4	4	2	10	3	28
Five year average	1	4	2	2	1	4	1	15

TABLE 6

NET TONNAGE OF U.S. FLAG VESSELS FISHING BLUEFIN TUNA WITHIN 12 MILES OF THE MEXICAN COAST

1961–1965

Year	10–70 Tons	71–100 Tons	Over 100 Tons	Total
1961	--	6	3	9
1962	--	4	2	6
1963	3	8	3	14
1964	--	4	12	16
1965	2	9	17	28

TABLE 7

U.S. FLEET BLUEFIN TUNA EFFORT

FIVE-YEAR AVERAGE, 1961–1965

[Standard Days] *

0 to 3 miles of Mexican coast	3 to 12 miles of Mexican coast	Within 12 miles of Mexican coast	South of boundary less 12 miles	South of boundary total	North of boundary (California)	Total effort
191	47	193	1,504	1,697	782	2,675

* Twelve hours.

THE MARKET FISHERY

United States vessels participate in a fishery for market fish *(peces para mercado-fresco)* along the west coast of Baja California from the Mexico-California border to Cape San Lucas (Figure 5) and, to some extent, into the Gulf of California. During the period 1961 to 1965, these vessels annually landed in California ports an average of over 1.8 million pounds of market fish (Table 8) caught off the coast of Mexico. These landings brought over $350,000 to the fishermen and, at the 3.2:1 ratio, added about $1,120,000 to the state's economy. In 1965, 49 California-based vessels engaged in the fishery.

The market fishery off Baja California is based upon 7 species which make up over 90 percent of the catch: California barracuda, grouper, California halibut, rockfishes, giant sea bass, white seabass, and California yellowtail; about 25 other species are taken incidentally. Waters off Mexico provide from 2.3 percent (rockfishes) to 100.0 percent (grouper) of the total California landings of these species (Table 9). About 95 percent of the catch is made within 9 miles of the Mexican shore (Tables 10, 11); in fact, most of it comes from inside the 25 fathom curve, which characteristically is within 3 miles of shore. About 1 percent of the catch is made between 9 and 12 miles from shore and the remaining 4 percent on banks more than 12 miles offshore.

Our catch records, based upon fish receipts, are not sophisticated enough to pinpoint catches by distance from shore. This information was ascertained from interviews with fishermen and from the personal knowledge of staff members familiar with the fishery. Because a large portion of the market fishery is tied to depth contours and to specific banks, we believe the allocations to be quite accurate.

The vessels engaged in this fishery employ a variety of fishing gear: hook and line, gill nets, trammel nets, and purse seines are the more common types of equipment used.

Principal Species in the Baja California Market Fish Fishery

California Barracuda

The fishing grounds for barracuda extend along the west coast of Baja California from Point Santo Tomas to Magdalena Bay in waters 3 to 25 fathoms deep and inside the 9 mile zone. Barracuda are fished in conjunction with white seabass, giant sea bass, and yellowtail. During 1961-65, the Baja California barracuda fishery contributed approximately 26 percent of the total California landings. The catch off Mexico averaged about 132,000 pounds worth $20,500 to the fishermen. Barracuda catches were less during these 5 years than in any other comparable period since 1928. This reflects both a decreased market demand and an increased availability of these fish off California associated with comparatively warm ocean water.

Grouper

The waters off Baja California produce 100 percent of the groupers landed in California. Landings in California during the period 1961 to 1965 averaged nearly 225,000 pounds and annually contributed $57,000 to the income of the California fishermen. This fishery extends from 20 to 30 miles north of San Juanico Bay southward to Cape San Lucas and

into the Gulf of California. Groupers are primarily taken in waters 5 to 25 fathoms deep; therefore about 93 percent of the catch comes from waters within 9 miles of shore, 5 percent from waters 9 to 12 miles from shore, and about 2 percent from banks over 12 miles from shore.

California Halibut

California halibut are sometimes taken by trammel net inside the Coronado Islands and north of Ensenada. A gill-net fishery south of Cape Colnett also provides a halibut catch. Catches are made primarily inside the 10-fathom curve, and all are made within 9 miles of shore. During the period 1961–1965, the Baja California fishery annually contributed 15 percent of the total California halibut landings and provided $35,000 to the income of California fishermen.

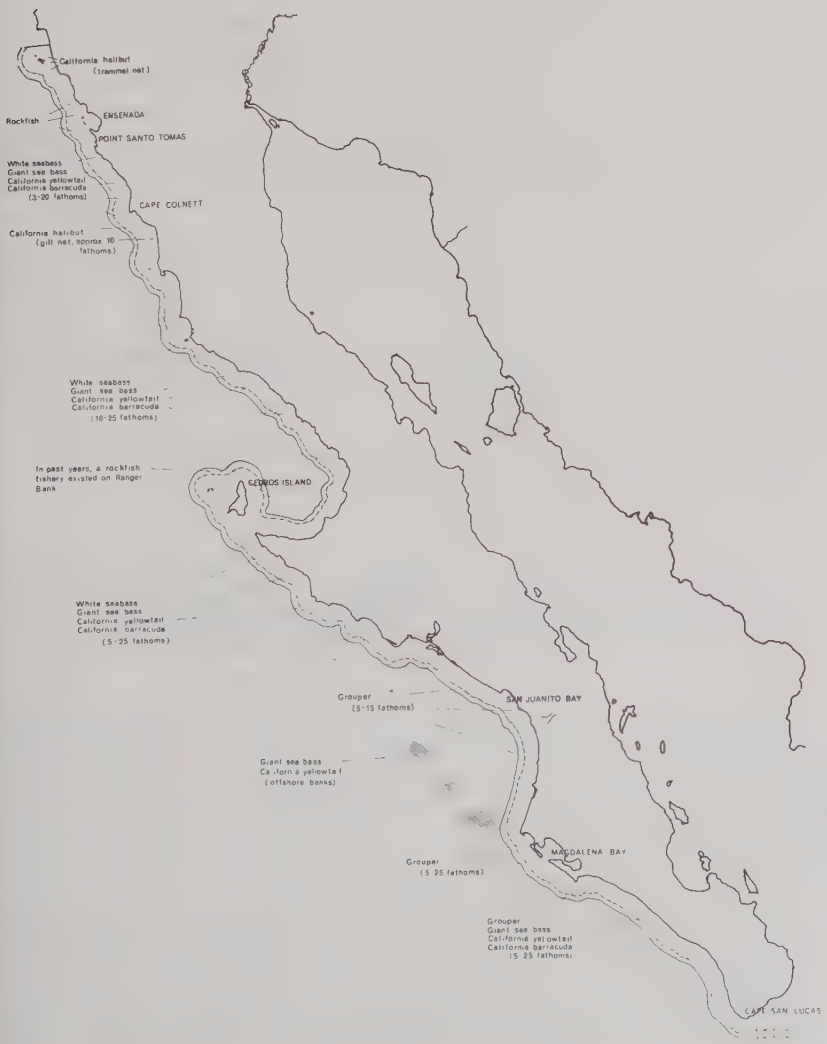


FIGURE 5. Principal market fishing areas off Baja California used by California-based vessels.

TABLE 8

POUNDAGES OF MARKET FISH CAUGHT OFF MEXICO BY U.S. VESSELS AND DELIVERED TO CALIFORNIA PORTS, 1961–1965

Species	Year					Total	Average
	1961	1962	1963	1964	1965		
Barracuda, California	231,017	224,707	31,360	83,115	89,055	659,254	131,851
Grouper	202,271	311,091	233,482	164,030	213,815	1,124,689	224,938
Halibut, California	109,082	87,009	265,277	184,037	115,370	760,775	152,155
Rockfishes	339,742	441,299	215,144	74,050	99,649	1,169,884	233,977
Sea bass, giant	327,854	438,021	289,619	208,697	338,697	1,602,888	320,578
Seabass, white	235,733	365,541	518,741	840,264	850,538	2,810,817	562,163
Yellowtail, California*	205,586	151,355	44,283	84,221	115,283	600,728	120,146
All others	114,208	230,372	139,473	115,498	91,979	691,530	138,305
Total	**1,765,493**	**2,249,395**	**1,737,379**	**1,753,912**	**1,914,386**	**9,420,565**	**1,884,113**

* An additional 94,494 pounds of yellowtail caught off Acapulco by a tuna vessel are not included.

TABLE 9

AVERAGE POUNDAGES OF PRINCIPAL MARKET FISH CAUGHT OFF MEXICO AND CALIFORNIA IN RELATION TO AVERAGE CALIFORNIA LANDINGS 1961–1965

Species	Catch off Mexico	Percent total California landings	Catch off California	Percent total California landings	Total California landings
Barracuda, California	131,851	26.0	374,302	74.0	506,153
Grouper	224,938	100.0	----	----	224,938
Halibut, California	152,155	14.7	879,411	85.3	1,031,566
Rockfishes	233,977	2.3	9,521,181	95.3	9,984,990
Sea bass, giant	320,578	96.3	12,345	3.7	332,923
Seabass, white	562,163	56.5	433,653	43.5	995,816
Yellowtail, California	139,044*	79.3	36,320	20.7	175,364
	(120,146)†	(76.8)†		(23.2)†	(156,466)†

* Total catch off Mexico. In 1961, 94,494 pounds of yellowtail were caught off Acapulco by a tuna vessel.
† These figures based on Baja California catches only.

TABLE 10

PERCENTAGE OF CATCH BY AREA FOR THE PRINCIPAL MARKET FISH SPECIES TAKEN OFF THE WEST COAST OF MEXICO BY CALIFORNIA-BASED VESSELS *

Species	Percent of catch		
	0–9 miles	9–12 miles	Over 12 miles
Barracuda, California	100.0	----	----
Grouper	93.0	5.0	2.0
Halibut, California	100.0	----	----
Rockfishes†	100.0	----	----
Sea bass, giant	85.0	‡	15.0
Seabass, white	100.0	----	----
Yellowtail, California	90.0	5.0	5.0

* Estimate made by Department biologists with personal knowledge of the fishery and from information obtained by interviewing fishermen.
† In years past, a fishery for rockfishes existed on Ranger Bank, northwest of Cedros Island. If this fishery should be re-established, part of the rockfish catch would occur in the 9–12 mile zone, and part would be taken over 12 miles from shore.
‡ Those few banks located within the 9–12 mile zone are rarely, if ever, fished for giant sea bass.

TABLE 11

AVERAGE (1961–1965) POUNDAGE AND VALUE BY ZONE OF THE PRINCIPAL MARKET FISH SPECIES TAKEN OFF THE WEST COAST OF MEXICO BY CALIFORNIA-BASED VESSELS

Species	0–9 miles		9–12 miles		Over 12 miles	
	Pounds	Value	Pounds	Value	Pounds	Value
Barracuda, California	131,851	$20,569	----	----	----	----
Grouper	209,192	44,763	11,247	$2,418	4,499	$967
Halibut, California	152,155	34,996	----	----	----	----
Rockfishes	233,977	28,077	----	----	----	----
Sea bass, giant	272,491	43,871	----	----	48,087	7,742
Seabass, white	562,163	150,098	----	----	----	----
Yellowtail, California	108,132	10,056	6,007	559	6,007	559
Total	1,669,961	$332,430	17,254	$2,977	58,593	$9,268

TABLE 12

NUMBER AND LENGTHS OF VESSELS LANDING MARKET FISH CAUGHT IN WATERS OFF MEXICO IN 1965

Length in feet					Total
10–20	21–30	31–40	41–50	51 and over	
1	1	28	17	2	49

TABLE 13

NUMBER AND NET TONNAGE OF VESSELS LANDING MARKET FISH CAUGHT IN WATERS OFF MEXICO IN 1965

Net tonnage				Total
1–3	4–15	16–70	Unknown*	
--	33	2	14	49

* It is possible one of these vessels (17 feet in length) might have a net tonnage that would fall in the 1–3 ton class. Twelve of the vessels are 30 to 40 feet in length and probably fall in the 4–15 ton class.

Rockfishes

A rockfish fishery exists at the present time in rocky areas from the border to south of Ensenada. Rockfish are also taken by vessels fishing farther south but usually as an incidental catch. In the past, a rockfish fishery existed on Ranger Bank northwest of Cedros Island.

The Baja California rockfish fishery annually contributes about 234,000 pounds, valued at $28,000, to the California landings. While this is less than 3 percent of the State's total rockfish landings in weight, it represents almost 5 percent of the value. It also represents over 50 percent of the rockfish landings in San Diego.

Giant Sea Bass

The giant sea bass fishery off Baja California contributes 96 percent of the total California landings. During the period 1961 to 1965, the catch off Mexico by California-based vessels averaged over 320,000

pounds and had an annual value of about $51,000 to the fishermen. This fishery extends from Point Santo Tomas to Cape San Lucas and occasionally into the Gulf of California. Eighty-five percent of the fish are caught within 9 miles of shore, and 15 percent are taken from banks that are over 12 miles from shore. The few fishing banks located in the 9–12 mile zone are rarely fished for this species.

White Seabass

This is the major species in the Baja California market fishery. The catch off Mexico annually averages over 562,000 pounds, is valued at over $150,000, and comprises 56.5 percent of the California landings.

White seabass, along with giant sea bass, barracuda, and yellowtail, forms a complex of fishes that is fished in waters 3 to 25 fathoms deep along the west coast of Baja California from Point Santo Tomas to San Juanico Bay. Waters of this depth are characteristically within 9 miles of shore.

California Yellowtail

The Baja California fishery for yellowtail extends from Point Santo Tomas southward to Cape San Lucas and into the Gulf of California. Occasionally, yellowtail from further south off the coast of Mexico are landed in California; but these are usually caught by tuna vessels rather than those engaged in the market fishery. Most yellowtail catches off Baja California are made in conjunction with fishing activities for other species. Approximately 90 percent of the catch is made within 9 miles of shore, 5 percent within 9 to 12 miles of shore, and 5 percent in waters over 12 miles from shore (Table 10). The Baja California fishery provided over 76 percent of the California landings during the period 1961 to 1965 and contributed over $11,000 annually to the State's fishermen.

During the mid-1950's, yellowtail catches were far greater than they are today because at that time, these fish were used for canning. Average landings for the period 1953–1958 were 1.3 million pounds. Cooler ocean temperatures off California during this period tended to keep the fish in the southern portion of their range so they were less available to California fishermen. At present, there is relatively little demand for canned yellowtail in the United States.

Pacific Bonito

Although now a minor constituent of the Baja California catch, bonito were once of considerable significance. As was the case with yellowtail, they were used mainly for canning, but demand for this species has been low in recent years. Bonito have been more abundant off California in the recent warm water years, and the local supply has generally been sufficient to meet consumer demands. Though not now significant as a market species, a potential exists for an increased fishery especially if the canned product obtains better reception.

RECREATIONAL FISHING BY U.S. CITIZENS OFF THE PACIFIC COAST OF MEXICO

Citizens of the United States have enjoyed the privilege of fishing under permit in the territorial waters of Mexico off the coast of Baja California for decades. Sport fishermen may be divided into three groups (which are not mutually exclusive) according to the type of vessel from which they fish. These groups include those who fish from: a) Partyboats which carry sportsmen at a standard fee on a regular schedule. These vessels usually do not enter Mexican ports; though a few which make extended trips may enter ports south of Ensenada; b) Charter boats which may or may not enter Mexican ports; and c) Private vessels of U.S. registry operating out of U.S. ports which may be cleared to operate out of Mexican ports.

This report is not concerned with (nor are data available to us regarding) U.S. citizens sportfishing out of Mexican ports on vessels of Mexican registry.

Most of the United States sport vessels for hire that fish the inshore waters of Mexico's west coast operate out of San Diego. This sportfishing industry has been in existence since the mid-1930's, and its operations have centered around the Coronado Islands. Generally speaking, these partyboats and charter boats make one-day trips and fish close to shore though some make extended cruises. In addition, a substantial number of private boat owners fish off the northern portion of Baja California in particular.

Catch data are excellent for partyboats, are more limited for charter boats, very limited for private vessels operating out of U.S. ports, and are non-existent for private vessels of U.S. registry operating out of Mexican ports.

California-Based Partyboat Fisheries Off Baja California

Partyboats based in the San Diego area routinely participate in sportfishing activities off the coast of Baja California (Figure 6). The bulk of their activity is in close proximity to the Coronado Islands, which are represented by California Department of Fish and Game statistical area 916 (Figure 7). Some of these vessels, operating out of both San Diego and San Pedro, take limited numbers of anglers on longer trips which may extend the full length of the Baja California peninsula, into the Gulf of California, or to offshore islands (Guadalupe, Revilla Gigedos). These trips are on a scheduled basis and last approximately two weeks. Partyboats from California ports as far north as Santa Monica conduct albacore cruises in waters over 12 miles off the Baja California coast during the albacore season. These account for over 90 percent of the fish taken in waters represented by Fish and Game statistical area 910 (Figure 7).

Fishing Localities

The Department of Fish and Game has been collecting data on the California-based partyboat fishery off Baja California since 1936. Concerning partyboat licenses, Section 7923 of the California Fish and Game Code states, "the holder of a license shall keep a true record in the English language of all fish taken . . ." As a result, the Depart-

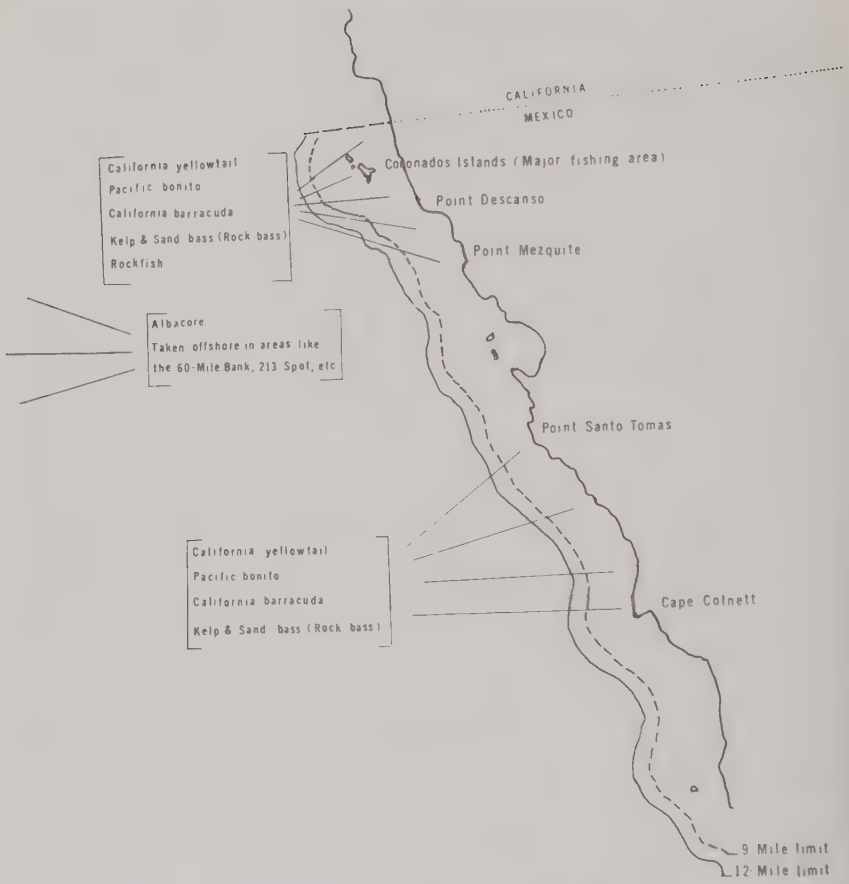


FIGURE 6. Principal partyboat fishing areas off Baja California used by California-based vessels.

ment has excellent information about the partyboat catch off the coast of northern Baja California.

To gather fishery data, a grid of five statistical areas was established for the inshore area north of Mesquite Point and around the Coronado Islands (Figure 7). These areas are almost entirely within 9 miles of shore, and all but a negligible amount of fishing activity in them occurs within the 9-mile zone.

All other California-based partyboat fishing activity in waters off the west coast of Mexico is assigned to a general statistical area, 910. Most fishing occurs over 12 miles from shore; however, partyboats operating below Ensenada fish in both waters less than 9 miles and over 12 miles from land. They also fish the banks in the 9–12 mile zone, but our records do not reveal the extent of activity there. Nevertheless, we believe that the effort is relatively small in the 9–12 mile zone, and that the catch there is negligible when compared to the total catch in area 910. The catch within 9 miles of shore is undoubtedly greater than that in the 9–12 mile zone, but still is not of appreciable significance.

Partyboat Fleet

In 1965, 67 partyboats made at least one trip off Baja California. These vessels ranged in length from 25 to 85 feet and represented 13 different home ports (Table 14).

Of the 67 boats, 31 fished only in area 910. These vessels were larger as a general rule and had a greater carrying capacity than the rest. Seven vessels fished only in waters off northern Baja California that are within 9 miles of shore. They provided sportsmen with one-day trips out of San Diego and concentrated their activities in the vicinity of the Coronado Islands. The remaining 29 fished both inshore and in area 910 (Table 15).

Since 1961, there has been a tendency for larger vessels to enter the fleet, and these operate primarily in area 910 (Table 16). This is due primarily to two things: the increased interest in fishing offshore for albacore, and the demand for extended trips down the west coast of Baja California, which the partyboat industry is supplying. This use of larger vessels is reflected in the number of anglers per boat-day that patronize the fishery (Table 17). Some of these larger vessels fish the inshore waters off northern Baja California when catches are good, and this is reflected by an increase in the number of anglers per inshore boat-day from 1961 to 1964. However, when the catch, particularly of yellowtail (Table 18), dropped off in 1965, the larger vessels did not visit these waters as much; and the number of anglers per boat day declined.

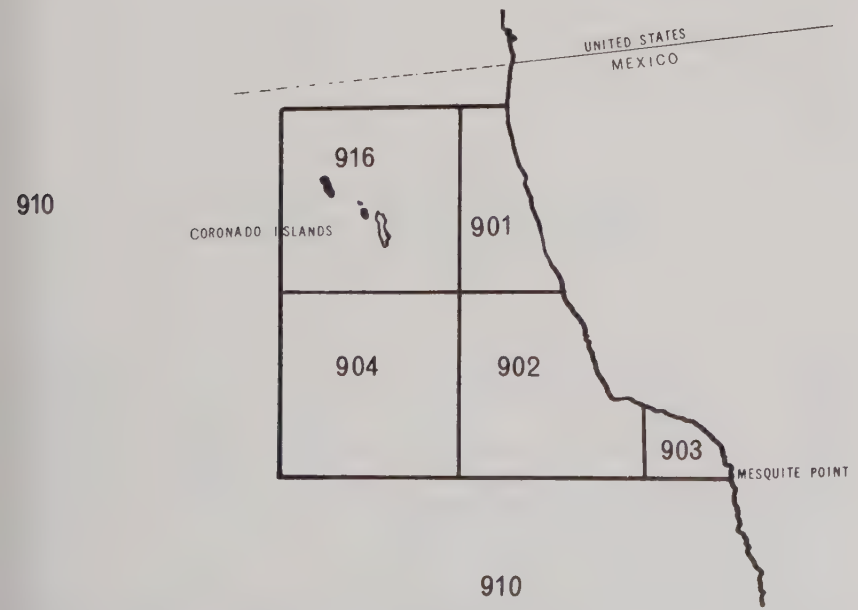


FIGURE 7. California Department of Fish and Game partyboat statistical areas off Baja California.

TABLE 14

LENGTHS AND HOME PORTS OF CALIFORNIA-BASED PARTYBOATS OPERATING IN WATERS OFF BAJA CALIFORNIA IN 1965

Length in feet							Total
21–30	31–40	41–50	51–60	61–70	71–80	Over 81	
1	11	23	10	12	5	5	67

Home port	Number of boats	Home port	Number of boats
Long Beach	6	Redondo Beach	1
Los Angeles	3	San Diego	32
Monterey	1	San Pedro	7
Newport	6	Santa Barbara	2
Oceanside	3	Terminal Island	1
Oxnard	1	Ventura	1
Port Hueneme	3		

TABLE 15

FISHING LOCATIONS OF CALIFORNIA-BASED PARTYBOATS OPERATING IN WATERS OFF BAJA CALIFORNIA IN 1965

Partyboats which confined their activities to within 9 miles of the northern Baja California shore (Statistical areas 901, 902, 903, 904, 916)*	7
Partyboats fishing only in area 910†	31
Partyboats fishing both the inshore waters of northern Baja California and area 910	29
	67
Total number of partyboats fishing the inshore waters of northern Baja California within 9 miles of shore	36
Total number of vessels fishing in area 910†	61

* See Figure 7.
† Some of these vessels may have fished less than 12 miles from shore in waters south of Ensenada, Baja California.

TABLE 16

NUMBER OF CALIFORNIA PARTY BOAT ANGLERS FISHING WATERS OFF THE COAST OF BAJA CALIFORNIA, 1961–1965

Year	Statistical areas*							
	901	902	903	904	916	Total†	910‡	Grand total§
1961	246	284	14	---	21,470	22,014	1,892	23,906
1962	104	189	69	120	20,706	21,188	11,582	32,770
1963	101	133	164	14	22,845	23,257	32,039	55,296
1964	897	102	333	108	27,459	28,899	37,897	66,796
1965	71	487	221	962	15,717	17,458	36,330	53,788
5-year average	284	239	160	241	21,639	22,563	23,948	46,511

* California Department of Fish and Game statistical areas (Figure 7).
† These anglers fished within 9 miles of the Baja California coast.
‡ The majority of these anglers fished for albacore in areas over 12 miles from shore; however, some of them fished within 12 miles of shore south of Ensenada.
§ A limited but undetermined number of these anglers fished in the 9-12 mile zone.

TABLE 17

AVERAGE NUMBER OF ANGLERS PER DAY ON CALIFORNIA-BASED PARTYBOATS OPERATING OFF BAJA CALIFORNIA, 1961–1965

Year	Statistical areas 901, 902, 903, 904, 916			Statistical area 910		
	Boat days	Anglers	Anglers per boat day	Boat days	Anglers	Anglers per boat day*
1961	1,443	22,014	15.3	80	1,892	23.6
1962	1,300	21,188	16.3	464	11,582	25.0
1963	1,296	23,257	17.9	1,352	32,039	23.7
1964	1,487	28,899	19.4	1,507	37,897	25.1
1965	1,048	17,458	16.7	1,335	36,330	27.2

* The number of anglers per trip would be slightly greater than this, for some trips in area 910 may last several weeks.

Species Sought

The California-based partyboat fishery took an annual average of 192,000 fish, weighing about 1.5 million pounds, from waters off Baja California during the period 1961–1965 (Tables 18–20). Approximately 50 species were represented in the catch; however, fewer than 10 species or species groups contributed over 90 percent of the landings. The average annual catch within 12 miles was about 128,000 fish, weighing an estimated 466,000 pounds. Catches outside of 12 miles were 64,000 fish, weighing over 1 million pounds.

California yellowtail is the prime target of sport fishermen in the nearshore areas (within 12 miles of land) during the spring, summer, and fall; and the whole fishery is dependent to no small degree on the magnitude of the yellowtail run. Barracuda is also a highly esteemed species, and when the water temperature regime is favorable, these 2 species are sought during the winter months. Pacific bonito, kelp bass, and sand bass are available all year. Rockfish, while available all year, are fished primarily during the winter months when more desirable species are not present.

Rockfish are the major contributors to the inshore catch in terms of numbers (40,000 fish); and they, along with Pacific bonito, kelp and sand bass, California yellowtail, California barracuda, sculpin, Pacific mackerel, California halibut, and California sheephead, make up the bulk of the inshore catch.

The major attraction in the Baja California offshore waters is albacore. While a few albacore are taken within 9 miles of shore, most are taken over 12 miles from shore and comprise the bulk of the offshore catch. This fishery exists for a relatively short time each year, usually reaching its peak in July and August.

The partyboats that offer extended cruises down the Baja California coast and to offshore islands are usually in search of marlin, wahoo, giant sea bass, yellowtail, barracuda, and other large game fish.

Number of Anglers

The number of anglers that participated in the California-based partyboat fishery off Baja California increased considerably during 1961–1965. (Table 21).

The number fishing within 9 miles of the northern Baja California shore (statistical areas 901–904 and 916) averaged 22,563 annually.

There was a sharp increase in 1964 when fishing was exceptionally good and a sharp decrease in 1965 when fishing conditions were less favorable. Generally speaking, there is a slight upward trend.

The number of anglers fishing from partyboats in area 910 increased from 1,892 in 1962 to 37,897 in 1964. Their major objective is albacore, and interest in this species continues to grow. As long as oceanic conditions in these waters are favorable for albacore, the trend of increased numbers of partyboat anglers fishing this offshore area will continue.

TABLE 18

AVERAGE NUMBERS AND WEIGHTS OF FISH TAKEN OFF BAJA CALIFORNIA BY THE CALIFORNIA-BASED PARTYBOAT FISHERY, 1961–1965

Species	Average weight per fish	Average no. fish caught within 9 miles of shore*	Weight of average catch	Average no. fish caught in area 910†	Weight of average catch
Barracuda, California	4.9	8,438	41,346	767	3,758
Bass, kelp and sand	1.2	17,450	20,940	858	1,030
Bonito, Pacific	3.0	34,554	103,662	854	2,562
Bullet mackerel	1.5‡	----	----	4	6
Cabezon	2.0	99	198	>1	----
Croaker	0.7	10	7	----	----
Croaker, white	0.5	11	6	----	----
Croaker, yellowfin	0.6	14	8	----	----
Dolphinfish	12.0‡	----	----	96	1,152
Flatfish, miscellaneous	0.75	283	212	1	1
Flyingfish	1.5‡	----	----	>1	----
Grouper	18.0‡	----	----	27	486
Halibut, California	4.0	1,439	5,756	16	64
Hake, Pacific	2.0	3	6	----	----
Halfmoon	1.0	67	67	1	1
Jacks (Carangids)	15.0‡	----	----	35	525
Lingcod	8.0	290	2,320	11	88
Mackerel, jack	3.0	187	561	194	582
Mackerel, Pacific	1.2	2,078	2,494	938	1,126
Marlin	140.0	1	140	22	3,080
Opah	30.0‡	----	----	2	60
Opaleye	1.0‡	3	3	----	----
Perch	1.0	1	1	----	----
Rockfish	1.8	39,264	70,675	703	1,265
Sailfish	40.0‡	----	----	>1	----
Salmon	7.5	>1	----	----	----
Salmon, silver	7.0	>1	----	----	----
Sanddab	0.3	42	13	----	----
Sculpin	1.3	3,771	4,902	20	26
Sea bass, giant	60.0	22	1,320	75	4,500
Seabass, white	7.8	449	3,502	28	218
Shark	5.0	2	10	1	5
Sheephead, California	3.1	1,354	4,197	162	502
Sierra	3.0	----	----	3	9
Smelt	0.4	3	1	----	--
Snapper	5.0‡	----	----	9	45
Tuna, albacore	18.4	1,962	36,101	53,874	991,282
Tuna, bluefin	15.0‡	21	315	237	3,555
Tuna, skipjack	6.0‡	74	444	2,061	12,366
Tuna, yellowfin	18.0‡	>1	----	55	990
Wahoo	20.0‡	----	----	12	240
Whitefish, ocean	2.0	962	1,924	108	216
Yellowtail, California	12.0	13,578	162,936	2,420	29,040
Miscellaneous fish	1.74	1,389	2,417	274	601
Total	----	127,821	466,484	63,868	1,059,381

* California Department of Fish and Game statistical areas 901, 902, 903, 904, and 916 (Figure 7).

† Catches in area 910 are mainly from waters beyond 12 miles from shore; however, there are some catches represented that were made within 12 miles of shore at various points along the Peninsula south of Ensenada.

‡ Estimates.

Partyboats making extended trips are becoming more popular and we expect the number of anglers patronizing them to increase in future years.

Value of the Baja California Partyboat Fishery to California

The California-based partyboat fishery off Baja California is of considerable economic importance to California and in particular to the San Diego area.

Using $15 per day per angler as a base, the industry has an estimated annual gross income from fares alone of about $700,000. This is a reasonable base figure, for the offshore and extended trips cost considerably more than this per day, while the shorter inshore trips off northern Baja California are on the order of $10 per day.

The inshore segment of the partyboat fishery is a significant constituent of this industry. At $10 per day, anglers using these areas paid over $225,000 to the boat operators alone each year.

All these anglers purchase fishing equipment; fishermen from inland areas stay in motels, eat at restaurants, buy gasoline, etc. Considering the boat fares and these other expenditures, we feel it is very safe to say the Baja California partyboat fishery contributes well over $1 million to the State's economy each year.

Charter Boat Fisheries Off Baja California

The charter boat fleet is really a nebulous segment of the partyboat fleet because vessels that are partyboats on one trip may be charter boats on the next. The distinguishing characteristic between the two is how the vessels are "hired." In the partyboat operation, the angler buys space on the vessel for the trip and the captain of the boat usually decides where the boat will fish. When the angler "hires" the vessel for the trip, it is considered a charter boat operation. In this case, the angler has more to say about where the boat will fish.

Because of the obvious complications that would arise from trying to keep separate catch records for these two "fleets" and because there really is not pressing reason to do so, no effort is made to distinguish between their activities as far as catch data are concerned. The data presented in this report for the partyboat fishery therefore include catches made by charter boats.

Sportfishing From Private Vessels

Privately owned California-based sportfishing vessels fish waters off Baja California from the border to Cape San Lucas and into the Gulf of Mexico. Each year, an increasing number of pleasure boats cruise down the west coast of Baja California to the Cape and then up to La Paz or beyond. In varying degrees, these boats engage in sport fishing; however, data are not available as to the magnitude of their fishing activities or to the size of their catch except for northern Baja California in 1964.

In 1964, the California Department of Fish and Game conducted a "creel census" of private boats based in southern California. Data collected at San Diego and Mission Bay show an estimated 3,066 man-days spent during the year fishing within 9 miles of shore in statistical areas 901 and 916 (Table 22, Figure 7). Fish taken in significant num-

bers included kelp bass, sand bass, white croaker, California halibut, California barracuda, white seabass, sculpin, and various species of rockfish. In addition, 7,323 man-days were spent fishing in waters over 12 miles from the coast for albacore and marlin (Table 23).

There was little or no fishing in the 9–12 mile zone.

TABLE 19

NUMBER OF FISH TAKEN BY PARTYBOAT FISHERMEN IN WATERS OFF BAJA CALIFORNIA NORTH OF ENSENADA AND WITHIN NINE MILES OF SHORE

Species	1961	1962	1963	1964	1965	Total	5-year average
Albacore	479	1,337	715	1,950	5,328	9,809	1,962
Barracuda, California	8,780	1,318	9,922	13,906	8,364	42,190	8,438
Bass, kelp and sand	10,673	13,986	21,480	23,763	17,400	87,252	17,450
Bonito, Pacific	31,520	19,599	22,808	72,853	25,992	172,772	34,554
Mackerel, Pacific	818	4,192	1,121	1,108	3,149	10,388	2,078
Rockfishes	57,569	43,750	35,613	28,317	31,071	196,320	39,264
Sculpin	2,265	2,473	6,181	3,740	4,197	18,856	3,771
Sheephead, California	1,130	788	1,266	977	2,609	6,770	1,354
Yellowtail, California	12,084	10,735	19,929	19,872	5,172	67,792	13,558
Incidental-caught fish*	5,007	4,987	4,866	6,609	5,407	26,876	5,372
Total	**130,325**	**103,165**	**123,751**	**172,895**	**108,989**	**639,125**	**127,821**

* Includes California halibut, ocean whitefish, white seabass, jack mackerel, lingcod, and others (Table 18).

TABLE 20

NUMBER OF FISH TAKEN BY PARTYBOAT FISHERMEN IN WATERS OFF BAJA CALIFORNIA IN STATISTICAL AREA 910 *

Species	1961	1962	1963	1964	1965	Total	5-year average
Albacore	3,813	36,846	85,424	79,058	64,231	269,372	53,874
Barracuda, California	326	511	315	1,618	1,066	3,836	767
Bass, kelp and sand	70	175	1,278	1,435	1,333	4,291	858
Bonito, Pacific	----	850	968	755	1,698	4,271	854
Mackerel, Pacific	----	----	3,556	780	352	4,688	938
Rockfishes	880	107	222	1,174	1,131	3,514	703
Tuna, skipjack	----	----	5,181	3,404	1,722	10,307	2,061
Yellowtail, California	215	36	1,029	1,100	6,691	12,101	2,420
Incidental-caught fish†	80	449	1,209	1,805	3,442	6,985	1,393
Total	**5,414**	**38,974**	**102,182**	**91,129**	**81,666**	**319,365**	**63,868**

* This is a California Department of Fish and Game statistical area. Catch data for Area 910 (Figure 7) mainly represent catches made in waters over 12 miles from the coast of Mexico; however, they do present data about the few catches made within 12 miles of shore south of Ensenada, Baja California.

† Includes jack mackerel, California sheephead, and marlin.

TABLE 21

PARTYBOAT FISHING EFFORT IN WATERS OFF BAJA CALIFORNIA EXPRESSED IN BOAT DAYS, 1961–1965

Year	Statistical area*							Grand total§
	901	902	903	904	916	Total†	910‡	
1961	17	23	1	----	1,402	1,443	80	1,523
1962	7	10	4	5	1,274	1,300	464	1,764
1963	4	7	10	1	1,274	1,296	1,352	2,648
1964	45	7	23	4	1,408	1,487	1,507	2,994
1965	4	21	15	29	979	1,048	1,335	2,383
5-year average	15	14	11	8	1,267	1,315	948	2,262

* California Department of Fish and Game statistical areas (Figure 7).
† This fishing effort was expended within 9 miles of the Baja California coast.
‡ This fishing effort was expended mainly on albacore in waters over 12 miles from shore; however, there was a small but undetermined amount expended within 12 miles of shore south of Ensenada.
§ Fishing effort expended in the 9–12 mile zone, while undetermined, is negligible.

TABLE 22

ESTIMATED SPORTFISHING EFFORT AND CATCH DURING 1964 BY UNITED STATES PRIVATE VESSELS FISHING WATERS WITHIN NINE MILES OF NORTHERN BAJA CALIFORNIA SHORES

Time period	Number of days sampled	Boat days	Man days	Man hours	Number of fish caught
January-February					
Mooring sites	0	----	----	----	----
Launching sites	3	0	0	0	0
Total	3	0	0	0	0
March-April					
Mooring sites	10	0	0	0	0
Launching sites	8	29	73	741	543
Total	18	29	73	741	543
May-June					
Mooring sites	9	258	1,029	8,341	2,011
Launching sites	6	54	108	938	513
Total	15	312	1,137	9,279	2,524
July-August					
Mooring sites	10	0	0	0	0
Launching sites	9	216	502	3,506	144
Total	19	216	502	3,506	144
September-October					
Mooring sites	10	442	1,083	8,835	122
Launching sites	8	82	271	2,159	696
Total	18	524	1,354	10,994	818
November-December					
Mooring sites	9	0	0	0	0
Launching sites	7	0	0	0	0
Total	16	0	0	0	0
Grand total	**89**	**1,081**	**3,066**	**24,520**	**4,029**

TABLE 23

ESTIMATED SPORTFISHING EFFORT AND CATCH DURING 1964 BY UNITED STATES PRIVATE VESSELS FISHING WATERS OVER 12 MILES FROM THE SHORES OF NORTHERN BAJA CALIFORNIA *

Time period	Number of days sampled	Boat days	Man days	Man hours	Number of fish caught
July-August					
Mooring sites	10	1,162	5,750	164,512	2,093
Launching sites	9	533	1,573	16,558	853
Total	19	1,695	7,323	181,070	2,946

* Fishing effort expended in the 9 to 12 mile zone is negligible.

FEES

Commercial vessels fishing in the west-coast territorial waters of Mexico do so under the terms of a Mexican permit issued pursuant to the Industrial Fishery Tax Law of Mexico. Permits are issued on a single-trip basis, and may be obtained at Ensenada, Baja California, or at Mexican offices maintained in San Pedro and San Diego, California. The San Diego office opened in 1916, and the San Pedro office in 1917 (Coleman 1923). Cost and duration of a permit depend upon the size (net tonnage) of the vessel concerned (Table 24). In addition, boats and nets must be registered, and individual fishermen must have credential cards.

Recreational fishermen carried on partyboats pay 12 pesos (96 cents) per day; this license fee is included in the price of the ticket. Each partyboat pays in addition an annual boat license fee of $1 per net ton, and each landing pays an annual fee based upon the volume of their business. For the larger San Diego landings this fee has been on the order of $750 in recent years. Boats making trips of more than 24 hours duration also pay a consular fee of $16. Individual U.S. fishermen can buy a three-day license for 6 pesos (48 cents), a 30-day license for 12 pesos (96 cents), a 90-day license for 25 pesos ($2.00), or an annual license for 50 pesos ($4.00) (Com. Nac. Consult. de Pesca, 1967).

A recent Mexican publication, (Secretaria de Industria y Comercio, 1966) gives details on permits issued during the period 1959–1965. The material which follows is abstracted from this document; therefore, it includes data pertaining to the yellowfin-skipjack fishery as well as those we have discussed.

The number of fishing permits issued by the three control offices declined between 1959 and 1964 (Table 25), this reflected particularly in the number issued to larger vessels; however, there was an increase in the number issued to small vessels (Table 26). The total number of authorizations has also declined. These include fishing permits (*despachos via la pesca*), boat registrations (*registro de embarcaciones*), net registrations (*registro de redes*), and credential cards (*tarjetas credenciales*). These declines reflect the volume and value of the total catch in Mexican waters by U.S. west coast fishermen. Catches have dropped over the years in tonnage, value, and percentage of the total Mexican catch from 45,009 metric tons (26.0%), worth 137 million pesos (21.3%) in 1959 to 11,900 metric tons (5.6%), worth 36 million

pesos (4.7%) in 1965. The peak year for U.S. fishermen was 1960 (64,000 metric tons, 195 million pesos).

National fisheries are steadily growing both in total catch and in relative proportion of the catch. U.S. catches remain substantial even though the quantity is less. How much of the decrease can be attributed to the cost of permits is an open question. Some tuna boat operators say they would purchase licenses if they cost less so that they could enter territorial waters if they wished. Some feel a flat fee annual license would actually generate more income for Mexico.

The permits are expensive (the average tuna boat permit issued during 1960–1966 cost over $1,200 according to the American Tunaboat Association), and tuna vessels tend not to buy unless they are quite sure they will have to fish in Mexican waters to insure a successful trip. Market boats and inshore sportfishers, on the other hand, have no alternative but to obtain permits if they wish to fish off Mexico.

There is no breakdown available of sportfishing permits by national origin, since the "authorizations" for sport fishing issued to both nationals and foreigners are combined in the Mexican publication. These totaled 135,000 in 1959, dropped to 79,000 in 1961 and since then have risen, reaching 132,000 in 1965.

RESULT OF THE NEGOTIATIONS

The material presented so far includes all that prepared in August 1967 as MRO Reference Number 67–22, and which was distributed to members of the United States delegation prior to the second-round negotiations held in Mexico City 11–19 September 1967. These negotiations culminated in an agreement which formed the basis for an exchange of notes (as opposed to a formal treaty) between the two governments. The agreement covers these points with respect to west coast fisheries for the five years beginning 1 January 1968 (the section of the Mexican law cited in the Introduction specifically limits foreign fishing in the Mexican exclusive fishing zone to this time period):

1. U.S. fishermen can continue to fish in waters 9 to 12 miles off Mexico for albacore, yellowfin, bluefin, skipjack, thread herring, white sea bass, giant sea bass, rockfishes, California halibut, yellowtail, barracuda, groupers, "and such other species as are commonly taken incidentally in fishing for the above-mentioned species," and for anchoveta, northern anchovy, and Pacific sardine as tuna bait only.

2. The total volume of these species to be taken commercially in the 9–12 mile zone during the 5 years is not to exceed the total catch made by U.S. vessels in the five-year period 1963–1967.

3. U.S. sport fishermen can continue to fish in the zone for the five-year period without reference to previous catch levels.

4. Reciprocally, Mexican vessels can fish in waters 9 to 12 miles off California "where fishing vessels of Mexico have carried on fishing traditionally and in a sustained manner" up to a level not to exceed their total catch in that zone during the 1963–67 period.

5. Vessels and gear employed by one country in the exclusive zone of the other must be of the same type as those used in 1963–1967 and must be legal in that country.

The agreement provides further for the necessary exchange of data to substantiate each nation's operations in the 9–12 mile zone of the

TABLE 6

Stomach Contents of Juvenile Bass in the Delta [1]

Food Items	Fall		Winter		Spring		Summer		Average	
	% Freq Occ	% by Vol	% Freq Occ	% by Vol	% Freq Occ	% by Vol	% Freq Occ	% by Vol	% Freq Occ	% by Vol
Annelids										
Polychaete (*Neanthes limnicola*)	Tr	Tr	--	--	--	--	--	--	Tr	Tr
Crustaceans										
Cladocerans and/or Copepods	--	--	Tr	Tr	Tr	Tr	--	--	Tr	Tr
Mysid shrimp (*Neomysis awatschensis*)	39	2	84	11	79	29	64	11	66	13
Isopod (*Exosphaeroma oregonensis*)	--	--	--	--	Tr	Tr	--	--	Tr	Tr
Amphipods (*Corophium*)	22	Tr	27	Tr	31	Tr	31	2	28	1
Crayfish (*Pacifastacus leniusculus*)	Tr	Tr	--	--	Tr	1	Tr	Tr	Tr	Tr
Crab (*Rhithropanopeus harrisii*)	1	1	--	--	--	--	--	--	Tr	Tr
Unidentifiable shrimp	--	--	1	Tr	--	--	1	1	Tr	Tr
Insects										
Tendipedids	9	Tr	--	--	1	Tr	3	Tr	3	Tr
Other insects	--	--	1	Tr	--	--	--	--	Tr	Tr
Molluscs										
Asiatic clam (*Corbicula fluminea*)	Tr	Tr	--	--	--	--	Tr	Tr	Tr	Tr
Fishes										
Unidentified Ammocoete	--	--	--	--	Tr	Tr	Tr	Tr	Tr	Tr
Threadfin shad (*Dorosoma petenense*)	27	72	3	38	1	11	2	4	8	31
American shad (*Alosa sapidissima*)	2	3	--	--	--	--	1	4	1	2
King salmon (*Oncorhynchus tshawytscha*)	--	--	--	--	1	1	1	3	Tr	1
Pond smelt (*Hypomesus transpacificus*)	--	--	--	--	1	3	2	8	1	3
White catfish (*Ictalurus catus*)	--	--	--	--	--	--	Tr	Tr	Tr	Tr
Striped bass (*Roccus saxatilis*)	4	7	1	8	Tr	1	26	55	8	18
Unidentifiable fishes	15	14	1	7	5	29	6	11	7	15
Sardine and anchovy bait	2	1	13	36	9	24	Tr	Tr	6	15
Stomachs examined	655		365		544		473			
Percent containing food	69		71		70		61			

[1] Stomach content data for juvenile bass in each of the eight environmental zones in the Delta were weighted by the percent of the total Delta population of juvenile bass found there and summed (see text, p. 71).

Diet of Subadult Bass

Subadult bass are defined by Radtke (see p. 15) as the 1961 year-class. These bass were 2 years old several months before the start of the study; they were 3 years of age shortly before the study terminated. In September, subadults were 26 to 37 cm long; by August they were 36 to 47 cm long.

Subadults fed primarily on fishes (Table 7). In the fall, threadfin shad and small striped bass were abundant in the Delta and both were consumed by more than one-third of the subadult bass. In the winter, even though numbers of threadfin shad and small striped bass in the Delta decreased, they still made up most of the diet. The percentage of the subadults that ate small bass did decrease somewhat; however, the percentage of the subadults that fed on threadfins increased slightly. By spring, there were few threadfin shad and striped bass of a size suitable for food in the Delta. Correspondingly, the occurrence of these fishes in stomachs of subadults decreased appreciably. In the summer, when the new year-classes of striped bass and threadfin shad became available, they were preyed upon more frequently. Small bass were especially prevalent in the summer diet of the subadults.

A significant percentage of the subadults fed on *N. awatschensis* in the winter, spring, and summer, and on *Corophium* in the spring; but

other during 1963–1967, and for an annual review of operations conducted under the agreement.

In essence, U.S. commercial fishermen can operate off the west coast of Mexico for the period 1968–1972 much as they have in the past: under permit (*via la pesca*) in territorial waters, and without any special permit up to the total catch level of 1963–1967 in the contiguous exclusive fishery zone. Sport fishing operations are unchanged inshore and there is no limitation on fishing intensity in the 9–12 mile zone.

The question of a revised permit system in Mexican territorial waters was discussed informally, but, since this is a matter of internal Mexican law, received no official consideration during the negotiations. Existing Mexican regulations thus continue to apply (Table 24).

Both delegations recognized the increasing need for joint cooperative efforts directed toward research on and conservation of the many living marine resources of common concern. A working group, of which the senior author was a member, recommended and the delegations approved an annex to the formal report which calls for, with respect to the Pacific, a meeting at the earliest convenient date of appropriate officials and scientists of the two nations to exchange information and develop coordinated programs of research and management with special respect to anchovies, sardines and hake.

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APPENDIX A

NAMES OF SPECIES
BAJA CALIFORNIA FISHERIES

Common names	Scientific names
Anchoveta	*Cetengraulis mysticetus*
Anchovy, northern	*Engraulis mordax*
Barracuda, California	*Sphyraena argentea*
Bass, kelp	*Paralabrax clathratus*
Bass, sand	*Paralabrax nebulifer*
Bonito, Pacific	*Sarda chiliensis*
Cabezon	*Scorpaenichthys marmoratus*
Croaker	Members of family Sciaenidae
Croaker, white	*Genyonemus lineatus*
Croaker, yellowfin	*Umbrina roncador*
Dolphinfish	*Coryphaena hippurus*
Flatfish	Members of families Pleuronectidae, Bothidae, and Cynoglossidae
Flyingfish	*Cypselurus* spp.
Grouper	*Mycteroperca* spp.
Halibut, California	*Paralichthys californicus*
Hake, Pacific	*Merluccius productus*
Halfmoon	*Medialuna californiensis*
Herring, thread	*Opisthonema* spp.
Jacks	Members of family Carangidae
Lingcod	*Ophiodon elongatus*
Mackerel, bullet	*Auxis* sp.
Mackerel, jack	*Trachurus symmetricus*
Mackerel, Pacific	*Scomber diego*
Marlin	*Makaira audax*
Opah	*Lampris regius*
Opaleye	*Girella nigricans*
Perch	Members of family Embiotocidae
Pompano, Pacific	*Palometa simillima*
Sablefish	*Anoplopoma fimbria*
Sailfish	*Istiophorus greyi*
Salmon	*Oncorhynchus* spp.
Salmon, silver	*Oncorhynchus kisutch*
Sanddab	*Citharichthys sordidus*
Sardine, Pacific	*Sardinops caerulea*
Sargo	*Anisotremus davidsoni*
Sculpin	*Scorpaena guttata*
Seabass, white	*Cynoscion nobilis*
Sea bass, giant	*Stereolepis gigas*
Shark	Various species
Sheephead, California	*Pimelometopon pulchrum*
Sierra	*Scomberomorus sierra*
Skate	*Raja* spp.
Smelt	Members of family Atherinidae
Snapper	Members of family Lutianidae
Sole	Various flatfish
Swordfish	*Xiphias gladius*
Tuna, albacore	*Thunnus alalunga*
Tuna, bluefin	*Thunnus thynnus*
Tuna, skipjack	*Euthynnus (Katsuwonus) pelamis*
Tuna, yellowfin	*Thunnus albacares*
Wahoo	*Acanthocybium solandri*
Whitefish, ocean	*Caulolatilus princeps*
Yellowtail, California	*Seriola dorsalis*

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